CURTIS'S
BOTANICAL MAGAZINE,

COMPRISING THE

Plants of the Royal Gardens of Kew,

AND

OF OTHER BOTANICAL ESTABLISHMENTS IN GREAT BRITAIN;

WITH SUITABLE DESCRIPTIONS;

BY

SIR JOSEPH DALTON HOOKER, M.D., C.B., K.C.S.I.,

F.R.S., F.L.S., ETC.,

D.C.L. OXON., LL.D. CANTAB., CORRESPONDENT OF THE INSTITUTE OF FRANCE.

VOL. L.

OF THE THIRD SERIES.

(Or Vol. CXX. of the Whole Work.)

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The garden grows, and fills the liberal air
With lavish fragrance; while the promised fruit
Lies yet a little embryo, unperceived,
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Mo. Bot. Garden,

THOMSON.

1895.

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1894.

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TO

CHARLES FORD, ESQ., F.L.S.

Superintendent, Botanical and Afforestation Department of Hong Kong.

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Believe me,

Dear Mr. Ford,

Most truly yours,

J. D. HOOKER.

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Late Director of the Royal Botanic Gardens of Kew.

Nature and Art to adorn the page combine,
And flowers exotic grace our northern clime.

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Tab. 7332.

SOBRALIA xantholeuca.

Native of Central America.

Nat. Ord. Orchideæ.—Tribe Neottieæ.

Genus Sobralia, *Ruiz & Pav.*; (*Benth. & Hook. f. Gen. Pl.* vol. iii. p. 590.)

Sobralia *xantholeuca*; elata, caulibus fusco-maculatis, foliis lanceolatis attenuato-acuminatis 8–10-nerviis, bracteis paucis 1–2-pollicaribus linearibus viridibus acutis, floribus maximis terminalibus sessilibus citrinis, sepalis 4½-pollicaribus lineari-lanceolatis acuminatis, petalis consimilibus paullo brevioribus, labelli sepalis æquilongi tubo cylindraceo, lamina ampla rotundatá, marginibus late recurvis crispato-undulatis et crenatis, **fauce aurea luteo striolata.**

S. xantholeuca (*Reichb. f.* ?) *in Hort. Verschaff.* (1880). *Warner* and *Williams, Orchid-Album*, vol. vi. t. 250. *E. André in Rev. Hortic.* 1890, p. 12 *cum Ic. Sander, Reichenbachia*, vol. i. p. 201, t. 44. *Garden.* vol. xxii. p. 508, t. 366. *Williams Orchid Growers' Man.* Ed. 6, p. 576. *Gard. Chron.* (1889), i. p. 8, f. 1.

This magnificent species, which rivals in the size of its flowers *S. macrantha, Lindl.* (Plate 4446), and is of a much stouter habit, is a native of the same country, Guatemala, where it was discovered by Mr. H. Von Türkheim, at Alta Paz, in the province of St. Christobas, at an elevation of 4500 feet above the sea. There is a specimen of it in the Herbarium of Kew collected by its discoverer, and presented, with a fine Herbarium from the same country, by Capt. John Donnell Smith, of Baltimore, author of a valuable "Catalogue of Guatemalan Plants," of which three parts with good drawings of new species have already appeared. The flowers of the native specimen are of the same dimensions as those of the cultivated one here figured, as are others taken from plants grown in this country. In the "Gardener's Chronicle" cited above, mention is made, and an excellent wood-engraving given, of a specimen in the collection of T. Harcourt Pownall, Esq., of Drinkstone Park, Bury St. Edmund's, bearing eight opened flowers, and in the same work it is stated that at later periods the same plant bore in succes-

sive years fifty-six and sixty-eight flowers between the months of July and September.

The only other yellow-flowered species of the genus hitherto figured is *S. chlorantha*, Hook. (Plate 4682), a native of Para, it has broader elliptic-oblong subcoriaceous obscurely nerved leaves, and much smaller flowers, with a narrower lip than *S. xantholeuca*.

There is a doubt as to the authority of the name *xantholeuca*, but I think it may be traced to Mr. Vershaffelt's Nursery, and that Reichenbach applied it in or about 1880.

The plant here figured was obtained from Messrs. F. Sander and Co. in 1892, and flowered in the cool orchid house of the Royal Gardens, in July, 1893, the stem being then two feet high.

Descr.—*Stems* tufted, two feet high, as thick as a goose-quill, clothed with the appressed leaf sheaths which are pale greenish speckled with red-brown. *Leaves* 6–7 inches long, spreading and drooping, sessile on the sheaths, lanceolate, narrowed into long points, plaited with parallel deeply sunk nerves which answer to as many strong nerves beneath, dark green. *Bracts* few, 1–2 inches long, convolute, acute. *Flowers* solitary, terminal, colour lemon-yellow, with a golden throat to the lip streaked with darker yellow; ovary short. *Sepals* $3\frac{1}{2}$–$4\frac{1}{2}$ inches long, linear-lanceolate, acuminate, spreading and recurved. *Petals* similar, but rather shorter. *Lip* not longer than the sepals; tube cylindric, lamina orbicular, spreading with broad recurved, crispily waved crenate margins. *Column* long.—*J. D. H.*

Figs. 1 and 2, column; 3, anther; 4 and 5, pollinia:—*All enlarged.*

M'S del, J N Fitch lith.

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Tab. 7333.

KALANCHOE MARMORATA.

Native of Abyssinia.

Nat. Ord. Crassulaceæ.

Genus Kalanchoe, *Adans.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 659.)

Kalanchoe *marmorata*; glaberrima, caule robusto ramoso tereti, foliis magnis crassissimis obovatis v. obovato-oblongis subsessilibus crenatis maculatis apice rotundatis, cymis trichotomis, floribus crasse pedicellatis pedunculis pedicellisque albo virescentibus v. purpurascentibus, calycis laciniis pollicaribus lanceolatis flavo-viridibus, corolla tubo 4-pollicari angulato basi inflato, limbi 2-poll. lati lobis ovatis caudato-acuminatis albis, squamulis linearibus, antheris sessilibus biseriatis, stylis filiformibus.

K. marmorata, *Baker in Gard. Chron.* (1892) vol. ii. p. 300.

K. grandiflora, *A. Rich. Tent. Fl. Abyss.* vol. i. p. 310. *Sprenger in Gartenflora*, t. 1394. *Walp. Ann. Bot.* vol. ii. p. 668 (*non Wight & Arn.*).

Specimens of this noble species were sent to Kew for figuring in this work by my friend Thos. Hanbury, Esq., F.L.S., from his garden at Palazzo Orengo, Mortola, near Ventimiglia. Unfortunately an octavo plate does not admit of a full-sized figure of the fully developed leaves, which attain a length of eight to ten inches by four to five in breadth, are obovate, narrowed into a very broad short petiole, and are of a light green blotched with purple; the midrib in the upper surface towards the base bears sometimes short thick ear-shaped lobes.

K. marmorata was discovered in 1839 or thereabouts by M. Petit, a botanist sent out with a French expedition of discovery into Abyssinia, in the province of Ifat, and was published by A. Richard as *K. grandiflora*, overlooking the fact that this name had been previously applied by Wight to an Indian species which is figured on Plate 5460 of this work.

Mr. Hanbury sends me the following information regarding his plant, communicated to him by Professor Penzig, Director of the "Genoa Botanical Gardens." *K.*

January 1st, 1894.

marmorata was found, firstly in seed only, by Professor Schweinfurth, on Mt. Lalamba, near Keren, in March, 1891; and on a second expedition to the same mountain the specimens were procured which were received at the Genoa Gardens. The plant grew at the fort, and in the fissures of a coarse dark granite, north ot the fort, and at above 9500 feet alt. The species sustains dryness so well, that specimens collected March 20th, and packed in a little moss, bore the long journey very well, and arrived (at Genoa) in a capital state on the 1st May."

Mr. Hanbury further informs me that *K. marmorata* has not flowered at Genoa, but has abundantly in the drier and sunnier climate of Mortola.

Descr.—A very stout low branching shrub. *Leaves* opposite, six to eight inches long, obovate, narrowed into a short broad petiole, pale green blotched with purple, margins undulate or crenate; young smaller, orange-green with blood-red spots, and more deeply crenate. *Flowers* in large branched compound panicles; peduncles stout, pedicels one to one and a half inch long, and small subulate bracts pale flesh-coloured. *Sepals* one to one and a half inch long, lanceolate, erect. *Corolla* creamy-white, tube three inches long or more, slender, obscurely angled and twisted; lobes ovate, caudate-acuminate. *Stamens* eight, in two rows within the mouth of the corolla, filaments adnate to the corolla; anthers oblong, tipped by the connective. *Disk* of 4 erect threads. *Ovary* ovate-lanceolate, tapering into 4 filiform styles with small capitate stigmas. —*J. D. H.*

Fig. 1, Upper part of corolla laid open, showing the stamens; 2 and 3, anthers; 4, ovary and disk threads:—*All enlarged.*

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Tab. 7334.

ERYTHROXYLON Coca.

Native of South America.

Nat. Ord. Lineæ.—Tribe Erythroxyleæ.

Genus Erythroxylon, *Linn.*; (*Benth. & Hook. f. Gen. Pl.* vol. i. p. 244.)

Erythroxylon *Coca*; frutex ramulis gracilibus rufo-brunneis, foliis ellipticis v. elliptico v. obovato-oblongis apice rotundatis acutis retusisve sæpissime apiculatis membranaceis utrinque plica obscura notatis glaberrimis basi in petiolum brevem angustatis, stipulis dimidiato-lanceolatis ramulis appressis, floribus fasciculatis breviter pedicellatis ¼ poll. diam., calycis dentibus acutis, petalis stramineis intus appendice biloba lata instructis, staminibus petalis brevioribus, drupa lineari-oblonga.

E. Coca, *Lamk. Dict.* vol. ii. p. 393. *Cav. Diss.* vol. viii. p. 402, t. 229. *Ruiz. & Pav. Fl. Peruv. Tab. ined.* 398. *DC. Prodr.* vol. i. p. 575. *Hook. Comp. Bot. Mag.* vol. i. p. 161, and vol. ii. p. 25, t. 21. *Martius, in Muench. Abhandl.* vol. iii. p. 367, t. 6. *Bentl. & Trimen, Medicin. Pl.* vol. i. t. 40 (*var.* novo-granatensis. *Kew Bulletin*, 1889, p. 5.

The literature, historical, commercial, botanical and pharmaceutical, of the Coca plant, is very extensive, and is fully given in an article in the *Kew Bulletin* cited above, from which most of the following information is culled.

Erythroxylon Coca, Lamk., of which the figure here given represents one of several more or less distinct cultivated varieties, was first brought to notice in a posthumous work printed in Seville in 1580, on the Medicinal substances of the Spanish West Indies, by Nicholas Monardes, a Spaniard. It was described and named botanically, first by Lamarck (Dict. vol. ii. p. 393) in 1786, from specimens collected by Joseph Jussieu in Peru; and was first figured by Cavanilles (Diss. viii. t. 229) in 1790. This was followed by a graphic account of the cultivation, value and properties of the Coca plant by Poeppig in his Travels in Chili and Peru, who gave details regarding the value of the leaf used as a masticatory in maintaining and restoring muscular strength, which I can well remember being regarded as highly coloured if not fabulous. Poeppig's account was translated for Sir W. Hooker's "Companion

to the Botanical Magazine," where there is also a figure of one variety of the plant, collected by Mr. Matthews of Lima, at Chinchao in Peru. The latter publication was mainly instrumental in directing the attention of the medical faculty to the Coca, the therapeutical history of which will be found in Bentley and Trimen's work cited above. It is enough to say that the trials made in England with the dried leaf, or with the active alkaloid "Cocaine" procured from the leaf, were not up to that time encouraging. More recently very careful experiments have been made with Cocaine by Dr. H. H. Rusby, of New York, and published in the "Therapeutic Gazette," under the title of "Coca at home and abroad." Dr. Rusby says, "The effects of Cocaine as a nerve stimulus applied to intellectual and emotional activity are ruinous. It takes away appetite, abolishes the sensations of hunger and thirst, lessens waste during exertion, and decreases the exhaustion of ill-fed labourers and travellers. Beyond this Cocaine has no supporting or nourishing power whatever, and its essential action is enfeebling. Every attempt made to support by it athletic competition has resulted in failure, or even disaster." Comparatively recently a more excellent property has been found in Cocaine, namely, that of an anæsthetic, especially useful in operations on the eye.

Nevertheless the use of the leaf prevails throughout almost the whole length and breadth of South America. Its cultivation covers an enormous area; Bolivia produces 7,500,000 pounds of the dried leaf annually, Peru 15,000,000, and the produce of the Argentine Province, together with Paraguay and parts of Brazil, must be enormously greater.

As is to be expected in the case of a plant cultivated over so great an area, it has given origin to different local forms, amongst which none can be regarded scientifically as the type, owing to the fact that the native country of the species has not been satisfactorily ascertained.

In such a case recourse must be had to the principle of priority, and the first satisfactorily designated or depicted form must be regarded as the type, namely, the *E. Coca* of Lamarck, who describes and figures a Peruvian specimen with elliptic ovate acute leaves. With this form that here figured sufficiently accords. Specimens of it have

been received from the Botanical Gardens of Demerara, Ceylon, Darjeeling, Alipore (Calcutta), and the Jardin des Plantes; and dried leaves from Peru and various other sources; it is distinguished by the rather large leaves with an acute or rounded apiculate apex. Another form, var. *novo-granatensis*, with smaller leaves, often retuse at the apex with an apiculus, is figured in Bentley and Trimen's Medicinal Plants, vol. i. t. 40. It is cultivated in New Grenada, and was presented to Kew in 1869 by A. Dixon, Esq., of Cherkley Court, Leatherhead, who raised it from seeds sent him by the Bishop of Huanuco, a town in Peru, N.E. of Lima. A third, also in cultivation at Kew, is var. *Spruceana*, with acute leaves very much smaller than in that here figured, and of a very bright pale green colour. It was raised from seeds sent from the Botanical Gardens of Java.

The plant here figured was received from the Botanical Garden of Demerara in 1884, and flowered in the Royal Gardens, Kew, in April, 1893.—*J. D. H.*

Fig. 1, Portion of branch with stipules; 2, section of young leaf showing venation; 3, flower with the petals removed; 4, petal; 5 and 6, stamens; 7, ovary; 8, fruit from a Herbarium species:—All but fig. 8 *enlarged*.

M.S. del, J.N.Fitch lith.

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Tab. 7335.

PRUNUS humilis.

Native of Northern China.

Nat. Ord. Rosaceæ.—Tribe Pruneæ.

Genus Prunus, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 609.)

Prunus (Cerasus) *humilis*; fruticosa, ramosissima, inermis, glaberrimas, ramulis gracilibus, foliis oblongis ovato-oblongisve obtusis v. acutis crenulatis puberulis basi eglandulosis, subtus rugosis, stipulis linearibus glandulosis, pedunculis 1–2-floris erectis, pedicellis brevibus, calycibus campanulatis, lobis oblongis obtusis ciliolatis tubo subæquilongis, petalis orbicularibus crenulatis albis ungue rubro, staminibus petalis duplo longioribus, ovariis 1–2, drupis globoso ovoideis rubris, putamine lævi.

P. humilis, *Bunge Enum. Pl. Chin. Bor.* p. 23. *Maxim. in Mel. Biol.* vol. xi. p. 682, *et Fl. As. Or. Fragm.* p. 11. *Bretschn. Early Researches into the Flora of China*, p. 31. *Hance in Journ. Bot.* 1875, p. 131. *Debeaux Fl. Chef.* p. 52. *Franch. Pl. David.* p. 104. *Hemsl. in Journ. Linn. Soc.* vol. xxiii. p. 218.

P. japonica, *Carr. in Rev. Hortic.* 1873, p. 457, f. 41 (*non Thunb.*).

P. Bungei, *Walp. Rep. Bot.* vol. ii. p. 9.

The earliest account of this pretty dwarf cherry is that of a French missionary, Dominicus Parennin, who in 1733 communicated to the Academy of Sciences, Paris, an account of the drugs, &c., of Northern China, and of which communication a *resumé* is given by the indefatigable and learned Dr. Bretschneider, late Physician to the Russian Legation, Peking, in a brochure published at Shanghai in 1881, entitled "Early European Researches into the Flora of China." Of the wild fruits of the country Father Parennin says there are very few, adding that two only are worthy of notice. One, "the fruit of the Oulana, as the Tartars call it, is of the size of a great red cherry, and is produced on a little stem 3 or 4 inches high. The other fruit has the appearance of small raisins. It is produced in clusters on a fine tree 25 ft. or more in height. After the first frost these berries become red, and are then of an acidulated sweet taste." With respect to these fruits, Dr. Bretschneider adds, that "Oolana is the Mongol and Manchurian name of *Prunus humilis*, frequent

on the mountains of N. China and S. Mongolia; and as for the other fruit mentioned, it is difficult to say what is meant, for Father Parennin gives no native name. Perhaps it may be *Sorbus Aucuparia*."

There are many specimens of *P. humilis* in the Kew Herbarium, and amongst these one from T. L. Bullock, Esq., who describes the shrub as a foot high, growing in the upper part of Mt. Conolly, Peking, and said to bear a fruit called Oliura; and another from Mr. John Ross, who also calls it a shrub, but gives Ow-li as its name. It has been suggested that it is the parent of the cultivated *Prunus japonica*.

The plant from which the specimen figured was taken was raised in the Royal Gardens, from seeds sent by Dr. Bretschneider from Peking, which flowered in the open ground in 1886, but did not ripen its fruit till 1892, when the bushes of it, which had attained 3 to 4 feet in height, were covered with fruit. I have retained the name of *P. humilis* given by Bunge, though it has been changed into *P. Bungei* by Walpers, because of there being an earlier *Cerasus humilis*, Moris, a native of Sardinia, but there is reason to believe that this latter plant is only a variety of *P. prostrata*, Labill.

Descr.—A shrub, attaining four feet in height, with slender erect branches covered with dark brown bark. *Leaves* one and a half to two inches long, shortly petioled, elliptic ovate, subacute, serrulate, bright green above, nerves reticulate; stipules linear, strongly glandular-ciliate. *Flowers* half an inch in diameter, solitary or in pairs on a short peduncle; pedicel $\frac{1}{6}$ in. long, bracteate at the base. *Calyx* campanulate, 5-lobed to the middle; lobes as long as the tube, oblong, obtuse, ciliolate. *Petals* about twice as long as the calyx-lobes, orbicular, crenulate, with a short red claw. *Stamens* rather longer than the petals. *Ovaries* one or two. *Drupe* half an inch long, ovoidly globose, bright red; stone smooth, elliptic ovoid, turgid. —*J. D. H.*

Fig. 1, Portion of branch with petiole and stipules; 2, flower with the petals removed; 3, petal; 4, ovaries; 5, section of ovary :—*All enlarged.*

Tab. 7336.

ÆSCHYNANTHUS obconica.

Native of the Malayan Peninsula and Islands.

Nat. Ord. Gesneraceæ.—Tribe Cyrtandreæ.

Genus Æschynanthus, *Jack.*; (*Benth. & Hook. f. Gen. Pl.* vol. ii. p. 1013.)

Æschynanthus (Holocalyx) *obconica*; caule gracili elongato ramoso, ramis pendulis subpilosis, foliis ovato-rotundatis v. elliptico-ovatis subacutis ciliolatis coriaceis, pedunculis brevibus bifloris, pedicellis pedunculo triplo longioribus calycibusque sanguineis pubescentibus, calyce amplo campanulato margine recurvo obscure 4-lobo, corollæ tubo curvo vix exserto sanguineo villoso, limbi lobis late ovatis obtusis flavidis marginibus vittaque media lata sanguineis, lobo postico erecto fornicato lateralibus patulis, filamentis exsertis glandulosis, ovario cylindraceo puberulo, stigmate disciforme, disco annulari.

Æ. obconica, *C. B. Clarke in DC. Monogr. Phanerog.* vol. v. pars. i. p. 50; *in Hook. Fl. Brit. Ind.* vol. iv. p. 342.

Æ. obconica belongs to a small section of the genus, all natives of the Malayan region, and is closely allied to *Æ. tricolor*, Hook., tab. 5031 of this work, differing in the very much larger broader calyx, and in the shorter corolla-tube. It was imported by Messrs. Veitch from the Malayan Peninsula, and there is a specimen of it in the Kew Herbarium from Borneo, collected at Banjarmassin by Motley (n. 687), which has been by an oversight included under *Æ. tricolor* in the monograph of *Cyrtandreæ* cited above. In the type specimen described by Mr. Clarke, which was collected by Beccari, at Klang in Sangalore, and which I have not seen, the leaves are elliptic or oblong, or rarely rhomboid, acuminate and narrowed at both ends.

The specimen figured was sent, in flower, to the Royal Gardens by Messrs. Veitch in July, 1893.

Stem slender, elongate, branched, terete, puberulous or sparsely hairy. *Leaves* 2–2½ in. by 1½ broad, orbicular-ovate, obtuse or subacute, glabrous, margins ciliolate, fleshy; nerves few, distant; petiole ¼ in., puberulous. *Flowers* in pairs in a short green upcurved peduncle with

a pair of small green bracts at the base; and a smaller pair of dark red ones at the apex of each; pedicels $\frac{1}{3}$—$\frac{1}{2}$ in. long, blood-red, and obscurely-pubescent like the calyx. *Calyx* broadly campanulate, nearly 1 in. diam., with a recurved nearly entire margin. *Corolla* short, villous with cellular hairs, tube hardly exserted, blood-red, glandular within. *Lobes* spreading, shortly ovate, often yellow with very broad blood-red margins, and a broad central red band. *Filaments* exserted, white, glandular. *Ovary* puberulous, cylindric, stigma sessile, disciform. *Disk* annular.—*J. D. H.*

Fig. 1, Ovary and disk; 2, hairs of corolla:—*Both enlarged.*

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Tab. 7337.

BARRINGTONIA samoensis.

Native of Polynesia.

Nat. Ord. Myrtaceæ.—Tribe Lecythideæ.

Genus Barringtonia, *Forst.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 720.)

Barringtonia (Butonica) *samoensis*: arbor, foliis subverticillatis breviter petiolatis oblanceolatis acuminatis remote denticulatis flaccidis, racemo terminali pendulo, floribus amplis (staminibus inclusis 3 poll. diam.) breviter crasse pedunculatis roseis, calycis tubo turbinato obscure 4-gono, lobis rotundatis ciliolatis, petalis fere 1 poll. longis ovato-oblongis reflexis marginibus recurvis, staminibus numerosissimis $1\frac{1}{2}$-poll. longis, fructu ovoideo tetragono.

B. samoensis, *A. Gray, in Bot. Un. St. Expl. Exped.* p. 508. *Walp. Ann. Bot.* vol. iv. p. 852.

B. excelsa, *A. Gray l. c.* (*non Blume*).

B. racemosa, *Gaud. in Freyc. Voy. Bot.* p. 483, t. 107, *excl. syn.*; (*non Blume*).

B. acutangula, *Blume Bijdr.* p. 1097 (*non Roxb.*).

B. insignis, *Miq. Fl. Ned. Ind.* vol. i. p. 488.

Stravadium insigne, *Blume in Van Houtte Fl. des Serres*, vol. vii. p. 24, t. 654, 655.

Butonica samoensis, *Miers in Trans. Linn. Soc. Ser.* ii. *Bot.* vol. i. p. 75. t. xiv. fig. 20–25.

According to Miers *B. samoensis* has been found only in the New Hebrides, Navigator's, and the Ladrone or Marianne group of Islands, growing as a tall, handsome tree, overlooking the habitat of Java given by Miquel.

Miers remarks upon Van Houtte's figure in the "Flora des Serres," that "it does not seem to have been made from any cultivated specimen, as he would lead us to suppose; its originality may indeed be doubted, after what I have shown in regard to his drawing tab. 409 under *B. speciosa*. From the resemblance of the former in the form and size of the leaf and the size of the flowers, we may infer that it is a made-up drawing with its details borrowed from Gaudichaud."

B. samoensis was received from M. Louis Van Houtte, of Ghent, in 1891, and flowered in a stove of the Royal

Gardens in May, 1893. The flowers, as Mr. Watson informs me, opened in the evening, and invariably fell on the following morning.

Descr.—A tall, handsome tree. *Leaves* sessile, subwhorled, 1–2 ft. long, spreading and decurved, thin, oblanceolate, narrowed into a very short petiole, margins undulate and toothed, bright green, with many spreading nerves, pale beneath, midrib very broad, and raised beneath. *Flowers* in long simple axillary pendulous racemes 2 ft. long, rachis dark red-brown, terete. Flowers shortly, stoutly pedicelled; pedicels dark green, terete. *Calyx*-tube turbinate, angular; lobes four, rounded. *Petals* before expansion forming a scarlet ball about the size of a large pea; when expanded, $3\frac{1}{4}$ in. long, ovate, subacute, recurved, pale flesh-coloured. *Stamens* innumerable, erecto-patent, forming a brush three inches in diameter, of very slender filaments with minute yellow anthers. *Ovary* turbinate, 4-angled; style filiform pink, stigma most minute. *Fruit* (according to Gaudichaud's drawing, 3 inches long by $1\frac{7}{8}$ in. broad, with four ribbed angles, which are decurrent on the pedicel.—*J. D. H.*

Fig. 1, Calyx and pistil; 2, stamens; 3, section of ovary; 4, ovule; 5, *reduced* view of whole plant:—*All enlarged.*

M.S. del, J.N. Fitch lith.

TAB. 7338.

VERONICA LYCOPODIOIDES.

Native of New Zealand.

Nat. Ord. SCROPHULARINEÆ.—Tribe DIGITALEÆ.

Genus VERONICA, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. ii. p. 964.)

VERONICA (Hebe) *lycopodioides*; fruticulus caespitosus glaber, ramulis erectis adultis tetragonis, foliis dimorphis adultis squamæformis densissime quadrifariam imbricatis crasse coriaceis deltoideo-ovatis concavis obtuse cuspidato-acuminatis, foliis primordialibus adultis duplo longioribus patulis in petiolum angustatis ovatis acute 3–5-lobis, floribus in capitulum terminalem ovoideum congestis sessilibus albis, bracteis foliiformibus ciliolatis calyci 4-partito æquilongis, sepalis inæqualibus oblongis obtusis tubum corollæ æquantibus, corollæ lobo postico rotundato erecto, lateralibus oblongis obtusis, antico minore lineari-oblongo, filamentis longe exsertis, antheris obovoideis magnis cœruleo-purpureis.

V. lycopodioides, *Hook. f. Handb. of N. Zeal. Fl.* p. 211. *Armstr. in Trans. N. Zeal. Institute*, vol. xiii. (1880), p. 357.

V. lycopodioides is a member of a curious group of New Zealand Speedwells, in which the minute leaves are densely imbricated on branches which hence resemble those of some species of *Lycopodium* and *Cypress*. Of these there are eight known species, besides that figured here, namely, *V. tetragona*, *V. tetrasticha*, *V. Hectori*, *V. salicornioides*, *V. cupressoides*, *V. Haastii*, *V. epacridea*, and *V. Armstrongii*, all of them mountain plants, and with the exception of the first (which is found in the Northern Island) all are confined to the Middle Island, not extending to the Chatham Islands, Stewart's Island, or the Islets south of New Zealand. This isolation of so abnormal a group is very interesting, especially if taken into account with a singular habit, which some (probably all) have, of being dimorphic as regards their foliage.

My attention was first called to this case of dimorphism so long ago as 1870, by Mr. T. W. Kirk, F.L.S. (now Curator of the Wellington Museum) who sent me a specimen of *V. cupressoides* with minute, spreading, lobulate leaves, and who afterwards published an account of this

and of a similar dimorphism in *V. Armstrongii*, Kirk, in the Transactions of the New Zealand Institute (vol. xi. (1878) p. 464). Mr. Kirk there states that almost all the Veronicas with appressed leaves have in a seedling state more or less lobulate, rarely linear, leaves, and that a reversion to this condition occurs in adult plants when partially shaded. More recently in 1888, Mr. N. E. Brown described, and figured in detail, various early and late conditions of *V. cupressoides*, with valuable observations respecting them, and it only remains to add that *V. lycopodioides* exhibits the same propensity to return when grown in shade to what is, no doubt, its seedling condition, as shown in the accompanying plate.

I am indebted to Sir E. Loder, of Leonardslee, Horsham, for flowering specimens of *V. lycopodioides*, and to Prof. Balfour for good examples of its dimorphic condition. In both cases the specimens were received in the middle of June.

Descr.—A small shrub, twelve to sixteen inches high, with erect stiff four-angled branches clothed with densely imbricating leaves, together about one-sixth of an inch in diameter. *Leaves* most densely quadrifariously imbricated, about as long as the branches are broad, triangular or deltoidly ovate, ciliolate, narrowed into a stout obtuse cusp or point, thickly coriaceous. *Flowers* about one-third of an inch in diameter, crowded towards the end of the branches, axillary, subsessile, white. *Sepals* free, elliptic, obtuse, ciliolate, as long as the corolla-tube. *Corolla* 4-lobed, lobes obtuse, concave, dorsal largest obovate, anticous smallest linear-oblong. *Stamens* far exserted; anthers large, broadly ovate, blueish purple. *Style* filiform. —*J. D. H.*

Fig. 1, Leaf; 2, bracts; 3, tip of branch bracts and flowers; 4, calyx and style; 5, ovary,—*all enlarged*; 6, branch with reverted foliage of *nat. size*; 7, portion of the same *enlarged*.

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Tab. 7339.

PENTARHAPHIA longiflora.

Native of the West Indies.

Nat. Ord. Gesneraceæ.—Tribe Gesnereæ.

Genus Pentarhaphia, *Lindl.*; (*Benth. & Hook. f. Gen. Pl.* vol. ii. p. 1005.)

Pentarhaphia (Eupentarhaphia) *longiflora*; frutex 6–8-pedalis, erecta, glabra, foliis lanceolatis v. oblongo-lanceolatis acuminatis serratis basi cuneatis supra saturate subtus pallide viridibus, pedunculis supra-axillaribus elongatis patentibus apice ad 4-floris, pedicellis adscendentibus bracteolatis, floribus erectis, calycis segmentis elongato-subulatis corolla triente brevioribus, corollæ tubo 1–1½ pollicari incurvo subinflato coccineo, limbi lobo postico erecto bilobo, lateralibus anticoque oblongis patulis, genitalibus longe exsertis coccineis.

P. longiflora, *Lindl. in Bot. Reg.* sub t. 1110. *Griseb. Fl. Brit. W. Ind.* p. 460.

P. exserta, *Decne in Ann. Sc. Nat. Ser.* iii. vol. vi. p. 104, t. 10. *Walp. l. c.* 736 (*excl. Syn. Sw.*).

P. florida, *Decne, l. c.* 106, t. 7. *Walp. l. c.*

P. Herminieri, *Decne, l. c.* 106. *Walp. l. c.*

P. Lindleyana, *Decne, l. c.* 103. *Walp. l. c.* 735.

P. montana, *Decne, l. c.* 105. *Walp. l. c.* 736.

P. Swartzii, *Decne, l. c.* 103. *Walp. l. c.* 735.

Conradia ventricosa, *Mart. Nov. Gen. & Sp.* iii. 38, *DC. l. c.*

Gesneria ventricosa, *Sw. Prodr. Veg. Ind. Occ.* 89, *et Fl. Ind. Occ.* p. 1026.

G. corymbosa, *Balb. et Bert. ex DC. Prodr.* vol. vii. p. 525.

The genus *Pentarhaphia* was founded by Lindley in 1827 on the *Gesneria ventricosa* of Swartz, in allusion to the five needle-shaped calyx-segments, Swartz's specific name being at the same time suppressed from (it may be supposed) its being considered inapplicable; a very arbitrary proceeding, I think, the corolla being really subventricose. Considerable additions have been made to the genus since its establishment, chiefly through the suppression of *Conradia*, Martius (which was not published till 1829) and the inclusion of several small, too closely allied and supposed monotypic genera. About forty species are known,

all tropical American, amongst which there are great differences in habit, calyx and corolla.

P. longiflora is an exceedingly handsome stove shrub, flowering freely throughout the summer and autumn. It is a native of several of the West India Islands, as Jamaica, Dominica, Montserrat, St. Domingo, Martinique, St. Vincent, and St. Lucia. Though an exceedingly well-marked species, very constant in habit and characters, and confined in its distribution to the West India Islands, it has been subdivided by Decaisne into six species in a monograph of the genus cited above, and where, strange to say, Lindley's specific name (of *longiflora*) is overlooked, the Swartzian *Gesneria ventricosa* being replaced by *P. Swartzii*.

P. longiflora has long been in cultivation at Kew, where it forms a handsome stove-shrub, about four feet high, flowering profusely in the summer and autumn months.

Descr.—A small, sparingly branched shrub, with brownish bark and terete green shoots. *Leaves* three to five inches long, petioled, ovate- or oblong lanceolate, acuminate, serrulate, dark green above, pale beneath, and there finely reticulated between the strong arching nerves; petiole $\frac{1}{2}$–$\frac{3}{4}$ of an inch long. *Flowers* in long-peduncled axillary or supra-axillary few-fld. cymes; peduncle half as long as the leaves, horizontally spreading, bearing at the end three to six erect pedicelled flowers; pedicels ascending, about $\frac{1}{2}$ inch long, with a single subulate bract about the middle. *Calyx-tube* subcampanulate, green, lobes twice or thrice as long, erect, very narrowly linear. *Corolla* one and a half inch long, bright scarlet, tube slightly curved, and obscurely gibbous, one-third inch in diameter, narrowed at the base; lobes small, dorsal erect, obcordate, concave, lateral spreading, ovate-oblong, tips rounded. *Stamens* far exserted, red; anthers small, cohering; staminode small, capitate. *Style* longer than the stamens; stigma disciform, red.—*J. D. H.*

Fig. 1, Calyx and ovary; 2, base of corolla laid open with stamens and staminodes; 3 and 4, anthers :—*All enlarged.*

M.S. del. J.N. Fitch lith.

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Tab. 7340.

DYCKIA Desmetiana.

Native probably of Southern Brazil.

Nat. Ord. Bromeliaceæ.—Tribe Pitcairnieæ.

Genus Dyckia, *Schultes*; (*Benth. et Hook. f. Gen. Plant.* vol. iii. p. 667.)

Dyckia *Desmetiana*, acaulis, foliis 20-30 dense rosulatis ensiformibus crassis rigidis bipedalibus facie obscure viridibus dorso subtiliter striatis aculeis marginalibus ascendentibus uncinatis, pedunculo elongato foliis pluribus reductis prædito, floribus in racemis laxis racemosis dispositis, pedicellis brevibus crassis ascendentibus, bracteis ovatis parvis, sepalis ovatis viridibus, petalis ovatis acuminatis rubris calyce duplo longioribus, staminibus petalis distincte brevioribus filamentis applanatis, ovario ovoideo stylo brevi apice stigmatoso tricuspidato.

Bromelia Desmetiana, *Hort.*

This new *Dyckia* differs from all the species previously known by its red flowers. It has been in cultivation in the Cactus house at Kew for several years, under the name of *Bromelia Desmetiana*, but only flowered last February for the first time, and proved to be not a *Bromelia*, but a *Dyckia*. It was purchased several years ago at the sale of the collection of the late Mr. J. T. Peacock, of Sudbury House, Hammersmith, and, I believe, was procured by him from De Smet, of Ghent. The *Dyckias* all inhabit the South of Brazil and the neighbouring regions, and are amongst the few *Bromeliaceæ* that require cool treatment. Thirty-five species are now known, only a small proportion of which have been brought into cultivation.

Descr.—Acaulescent. *Leaves* twenty or thirty in a dense rosette, ensiform, thick, rigid, recurving, two feet long, two inches broad at the base, narrowed gradually to a long point, dull green, and faintly striated on the face, distinctly striated with green and white on the back; marginal prickles uncinate, ascending, pungent. *Peduncle* two feet long, bearing many small, linear reduced leaves. *Panicle* lax, rhomboid, two feet long; racemes lax, the end

= Hechtia

one eight or nine inches long; pedicels short, thick, ascending; bracts small, ovate. *Sepals* ovate, greenish, a quarter of an inch long. *Petals* ovate, acuminate, pinkish red, twice as long as the sepals. *Stamens* much shorter than the petals; filaments flattened. *Ovary* ovoid; style short, tricuspidate at the stigmatic apex.—*J. G. Baker.*

Fig. 1, A flower; 2, petal and stamen; 3, pistil:—*All enlarged.*

A B del'f. [illegible] Lith.

[illegible]

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Tab. 7341.

ELÆAGNUS MULTIFLORA.

Native of Japan.

Nat. Ord. Elæagnaceæ.

Genus Elæagnus, *Linn.*; (*Benth. & Hook. f. Gen. Pl.* vol. iii. p. 204.)

Elæagnus *multiflora*; fruticosa, ramulis fuscis novellis lepidotis, foliis breviter petiolatis ovato- v. obovato-oblongis lanceolatisve obtusis, supra viridibus stellulatim puberulis, subtus floribusque dense argenteo-lepidotis rubro-fusco punctulatis, floribus solitariis fasciculatisve sæpius longe pedicellatis pallide stramineis, perianthio basi (ovarium tegente) auguste ellipsoideo, dein constricto breviter columnari, demum in tubum anguste campanulatum dilatato, lobis late ovatis subacutis, stylo apice recurvo uno latere late stigmatifero, fructibus aurantiaco-rubris oblongis utrinque rotundatis sarcocarpio carnoso endocarpio sulcato.

E. multiflora, *Thunb. Fl. Jap.* p. 66. *Schlecht. in DC. Prodr.* vol. xiv. p. 614.

E. longipes, *A. Gray, in Mem. Am. Acad. N.S.* vol. vi. (1858–9) p. 405. *Miquel Prolus. Fl. Jap.* 139. *Maxim. Mel. Biol.* Pars viii. p. 559, 560, and *in Bull. Acad. St. Petersb.* vol. xv. (1871) p. 377. *Franch. & Savat Enum. Pl. Jap.* vol. i. p. 408. *Masters in Gard. Chron.* (1873) p. 1015, f. 206. *Belg. Hortic.* (1883) t. xvi. *Lavalle, Arbor. Segrez.* p. 189, & *Ic. Sel.* p. 9, t. iv. *Garden & Forest* (1888) p. 499.

E. edulis, *Siebold in Rev. Hortic.* (1869) p. 300, and (1876) p. 18.

E. rotundifolia, *Gagn. in Rev. Hortic.* (1870–1) p. 540.

E. crispa, *Thunb. Fl. Jap.* p. 66.

In no genus of shrubby flowering plants are the species more difficult of definition by characters of habit and foliage than are those of *Elæagnus*. Asa Gray, when determining the Japanese collection of Perry's expedition, instituted *E. longipes*, to contain Thunberg's *multiflora* and *crispa*. An unfortunate name, because the pedicels are long only in one form of the plant, on which account and in deference to the priority of Thunberg's name, I have reverted to the name of *multiflora*. According to Maximovicz, whose knowledge of Japanese plants, derived from lengthened botanical explorations in the Archipelago, was unrivalled, there are four principal forms of *E. longipes*, namely,—α *hortensis*; unarmed, with elliptic leaves, very long pedicels, and large edible fruit; β *orata*,

with acuminate leaves, strongly clavate pedicels an inch long, and moderately sized edible fruit; γ *multiflora*, spinous, with small variable leaves, shorter peduncles, and small austere fruit; δ *crispa*, tall, spinous, with sublanleolate leaves and short pedicels. The plant here figured is no doubt the var. *hortensis*, though its fruits are very austere, and is, perhaps, only known as a cultivated form.

Franchet and Savat say of *E. longipes* that it is a hedge and mountain unarmed or spinous plant; with leaves elliptic to lanceolate, pedicels short or long, solitary or fascicled, and fruit austere or eatable. I find no notice of the fruit being used for sherbet, as is that of the European *E. hortensis*.

E. multiflora forms a large bush in the Royal Gardens, Kew, where it has been established for many years. It was probably introduced by one of the collectors, Oldham or Wilford, who were sent by the Royal Gardens to Japan about the middle of the century. It flowers in April and fruits abundantly in July. The beautiful fruits are, though very austere, greedily sought by birds.

Descr. A ramous shrub, four to six feet high, with spreading rigid branches, clothed with brown bark; shoots densely lepidote. *Leaves* one to three inches long, ovate or obovate-oblong or lanceolate, obtuse, green above and covered with a deciduous stellate pubescence, beneath silvery-white with lepidote scales and dotted with red-brown. *Flowers* solitary or few, lepidote like the leaves beneath, pendulous on lepidote pedicels as long as the perianth. *Perianth* one-half to two-thirds of an inch long, pale straw coloured, base ellipsoid where it covers the ovary, then contracted shortly cylindric, again dilating, and campanulate with four ovate lobes. *Anthers* small, sessile at the mouth of the tube. *Style* included, stigma linear. *Fruit* oblong, half an inch long, oblong, rounded at both ends, yellowish-red, dotted; flesh yellowish, austere.—*J. D. H.*

Figs. 1 and 2, Flower; 3, upper part of perianth laid open; 4, vertical section of lower part of perianth showing the ovary; 5, the same with the ovary bisected showing the ovule; 6, lepidote scales from the under-surface of the leaves and of the fruit; 7, stellate hairs from the upper surface of the leaves; 8, endocarp of the fruit; 9, the same laid open vertically, showing the seed; 10, section of seed showing the embryo:—*All enlarged.*

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Tab. 7342.

THOMSONIA napalensis.

Native of the Himalaya Mountains.

Nat. Ord. Aroideæ.—Tribe Pythonieæ.

Genus Thomsonia, *Wallich.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 971.)

Thomsonia *napalensis*; tubere magno, folio hysterantho amplo longe petiolato 3-secto, segmentis simplicibus v. furcatis pinnatipartitis, foliolis paucis oblongo-lanceolatis acuminatis nervis utrinque costæ permultis in unum intra-marginalem abeuntibus, pedunculo elato crasso marmorato, spatha magna erecta oblonga obtusa cymbiformi basi convoluta extus viridi, spadice crassa spathæ æquilonga tota cylindracea, inflorescentia fœminea brevi cum mascula elongata continua, appendice spadice æquilonga rugulosa, antheris dense compactis rimis apicalibus dehiscentibus, ovariis 2–3-locularibus confertis globosis, stylo elongato, stigmate disciformi, ovulis in loculis solitariis subbasilaribus erectis.

T. napalensis, *Wall. Pl. As. Rar.* vol. i. p. 83, t. 92. *Blume, Rumphia*, vol. i. p. 150. *Engler in DC. Monogr. Phanerog.* vol. ii. p. 397. *Hook. f. Fl. Brit. Ind.* vol. vi. p. 578.

Pythonium Wallichianum, *Schott & Endl. Meletem.* p. 17. *Schott Syn. Aroid.* p. 36; *Gen. Aroid.* t. 25; *Prodr. Aroid.* p. 123. *Kunth* Enum. Pl.* vol. iii. p. 30.

Arum grandiflorum, *Herb. Ham.*

Aroid, *Wall. Cat.* n. 8949.

The genus *Thomsonia* is so very closely allied to *Amorphophallus* that it might very well be reduced to a section of the latter, differing only in the tuberculate appendage of the spadix, the tubercles being merely arrested male flowers. Only one species is known, though another, *T. Hookeri*, Engler, l. c. p. 307 (Allopythion Hookeri, *Gen. Aroid.* p. 24, t. 24) was founded by Schott on a very bad specimen of a spathe collected by me in the Khasia hills, and the leaf of probably another plant altogether. The name *Thomsonia* was given by Dr. Wallich, in honour of the late Dr. Anthony Todd Thomson, Professor of Materia Medica in University College, London.

* The *P. Wallichianum*, Kirtikar, in *Journ. Bomb. Nat. Hist. Soc.* vol. vii. (1892), p. 312, t. D., a native of Bombay, is founded on the inflorescence of *Amorphophallus commutatus* and foliage of another plant.

T. napalensis is a native of the Himalaya Mountains, from Nepal eastwards to Assam and the Khasia hills; ascending in both to 5000 ft. Its tubers were sent in February 1891, to the Royal Gardens, by Mr. J. A. Gammie, Resident Manager of the Cinchona Plantations at Mungpo, in the Sikkim Himalaya. It flowered in a stove in March, 1893, and matured its leaf in July of the same year.

Descr.—A tall, stout, tuberous aroid, two to four feet high, flowering before leafing. *Tuber* several inches across. *Peduncle* and *petiole* pale grey, marbled with dark-green. *Leaf* two feet across and more, trisect, the segments simple, pinnatifid or pinnatisect, oblong-lanceolate, the terminal obovate, all very many-nerved, dark green above, pale beneath, margins waved or subcrenate. *Spathe* 6–12 in. long, erect, cymbiform, obtuse, open, convolute at the base only, bright green, paler within. *Spadix* almost as long as the spathe, sessile, very stout, cylindric, obtuse, upper half greenish-yellow, tubercled, lower for the most part male, female towards the base only. *Male fl.* of crowded columnar flattened anthers, with terminal parallel slits, the upper imperfect. *Fem. fl.* of crowded, globose, sessile ovaries, each with a stout, columnar curved style, and 3-lobed, broad, disciform stigma.—*J. D. H.*

Fig. 1, Cluster of stamens; 2, single stamens; 3, ovary; 4, section of the same showing one cell and the exposed ovule, *all enlarged*; 5, flowering, and 6, leafing plant, both greatly *reduced*.

M.S del. J.N Hutchith

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Tab. 7343.

HYDNOPHYTUM LONGIFLORUM.

Native of the Fiji Islands.

Nat. Ord. Rubiaceæ.—Tribe Psychotrieæ.

Genus Hydnophytum, *Jacq.*; (*Benth. & Hook. f. Gen. Pl.* vol ii. p. 132.)

Hydnophytum *longiflorum*; fruticulus glaberrimus, ramulis crassiusculis teretibus, foliis brevissime petiolatis ellipticis subacutis coriaceis costa crassa, stipulis ovatis deciduis, floribus axillaribus confertis sessilibus, corollæ albæ tubo semipollicari gracili limbi lobis ovatis triplo longiore, antheris ore corollæ subsessilibus, stigmate didymo.

H. longiflorum, *A. Gray in Proc. Am. Acad.* vol. iv. (1860). p. 42 (*Bot. Contrib.* (1858), No. 10). *Seem. Fl. Vit.* 438. *Beccari, Malesia*, vol. ii. p. 172, t. 45, f. 5–7.

Myrmecodia vitiensis, *Seem. in Bonplandia*, vol. ix. (1861), p. 256. *A. Gray, in Bonplandia*, vol. x. (1862), p. 36.

Under Tab. 6883 of this Magazine (*Myrmecodia Beccarii*) I have given some particulars of the history of the two genera of Rubiaceous insect-harbouring plants, *Myrmecodia* and *Hydnophytum*. Of these the first had then for the first time been flowered in Europe, and it is now followed by the second. Many attempts had previously been made to bring or send living plants of both home to England; the first of which was at my request, by Mr. Wallace about thirty-five years ago, from whom specimens of a *Myrmecodia* were received at the Royal Gardens, from the Malay Peninsula, but in a dying state. Subsequently specimens of a *Hydnophytum* were imported at various times from Queensland, but none of them survived the voyage, with the exception of the specimen of *H. Beccarii*, imported by Messrs. Veitch, and figured at t. 6883. *Hydnophytum* differs from *Myrmecodia*, not only in the tubers never being prickly, but also in distribution; for though both find their western limit in the Malayan Archipelago, *Hydnophytum* alone extends eastward beyond tropical Australia, into the Polynesian Islands, where six species have been found in the Fiji group alone. It is not known whether any of these Fijian species harbour ants, as de

many of both genera in the Malay Archipelago, &c. Nor is there sufficient reason for assuming that they should, the tuberous rootstock being a provision for the plant itself, and not for insects to nest in, similar to what occurs in many of the Himalayan epiphytic vacciniaceous plants, as may be seen on reference to the figure of *Pentapterygium serpens*, at t. 6777 of this magazine.

H. longiflorum was received at Kew in August, 1891, from Mr. D. Yeoward, Curator of the Botanical Station at Fiji, and it flowered in the Royal Gardens in February of the present year.

Descr.—*Tuber* attaining several inches in diameter, smooth, simple or lobed, emitting stout cylindric branching glabrous stems from or near the crown. *Leaves* two to two and a half inches long, subsessile, elliptic, obtuse, softly coriaceous, bright green, shining above, paler beneath, midrib strong; nerves few, obliquely ascending. *Flowers* few, in small axillary clusters of two to five, sessile, half an inch long, white. *Calyx-tube* subglobose; limb very short, truncate, very obscurely 4-toothed. *Corolla-tube* cylindric, walls thick, glabrous within; limb of four ovate spreading valvate thick segments, with thickened inflexed tips. *Anthers* subsessile at the mouth of the corolla-tube. *Style* very slender, exserted; stigma large, capitate, 4-lobed.—*J. D. H.*

Fig. 1, Flower; 2, longitudinal section of corolla; 3, ovary, style, and stigma:—*All enlarged.*

M.S.del. J.N Fitch lith.

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Tab. 7344.

HIPPEASTRUM BRACHYANDRUM.

Native of Argentaria.

Nat. Ord. Amaryllideæ.—Tribe Amarylleæ.

Genus Hippeastrum, *Herb.*; (*Benth. et Hook. f. Gen. Plant.* vol. iii. p. 724.)

Hippeastrum (*Habranthus*) *brachyandrum*; bulbo ovoideo, foliis 3–4 linearibus viridibus erectis subpedalibus ante anthesin productis, pedunculo elongato gracili unifloro, pedicello elongato, spathâ 1–2-valvi deorsum tubulosa, ovario parvo oblongo, perianthio erecto infundibulari 3–4-pollicari sursum pallide rubro deorsum saturate vinosus, tubo brevi cylindrico, lobis oblongo-lanceolatis flore expanso sursum late patulis, staminibus stylo-que perianthio duplo brevioribus, antheris linearibus, stylo apice stigmatoso profunde trifurcato.

Hippeastrum (Habranthus) brachyandrum, *Baker Handb. Amaryll.* p. 42. *Gard. Chron.* (1890), vol. ii. p. 154.

This new *Amaryllis* is one of the finest of all the known species of the section *Habranthus*. I first described it in 1888, from a dried specimen collected by Signor Parodi on the banks of the great river Parana, where it leaves Paraguay to enter the territory of the Argentine Republic. Soon afterwards it was introduced in a living state from Buenos Ayres by Mr. A. C. Bartholomew of Reading, who first flowered it in 1890. He presented a plant to the Royal Gardens, Kew, of which the seed ripened. The seedlings were planted in a border with a southern exposure, and have nearly all flowered. The first flowers opened in July, and they continued till September, so that the plant proves to be a valuable acquisition to horticulture. Our drawing was made from one of the Kew plants last July.

Descr.—*Bulb* ovoid, tunicated, above one inch in diameter. *Leaves* three or four, erect, linear, pale green, glabrous, developed before the flowers appear. *Peduncle* slender, a foot long, bearing always only a single flower; pedicel erect, two inches long; spathe as long as the pedicel, tubular at the base, one- or two valved. *Ovary*

small, oblong; style as long as the stamens, deeply three-forked at the stigmatose apex. *Perianth* funnel-shaped, three or four inches long, pale pink at the top, passing gradually into deep claret-red downwards; tube short, cylindrical; lobes oblong-lanceolate, one inch broad at the middle, spreading in the upper half when the flower is fully expanded. *Stamens* half as long as the lobes of the perianth; anthers large, linear, versatile.—*J. G. Baker.*

Fig. 1, Anther front view; 2, anther back view: 3, apex of style:—*All enlarged.*

M. S. del, J. N. Fitch lith.

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Tab. 7345.

PTYCHOSPERMA ELEGANS.

Native of tropical Australia.

Nat. Ord. Palmæ.—Tribe Arecæ.

Genus Ptychosperma, *Labill.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 891.

Ptychosperma *elegans*; caudice mediocri annulato lævi, foliis 6–7-pedalibus multifoliolatis, foliolis 2-pedalibus elongato-ensiformibus uni-costatis apice angustatis acutis uno latere dentatis, petiolo brevi supra concavo subtus convexo margine sulcato, spadice supra-foliaceo subbipedali latiore quam longo breviter pedunculato patulo, ramis patulis divisis, rachi compressa, ramulis spicisve fere pedalibus gracilibus cylindraceis, floribus ternis intermedio fœmineo; *fl. masc.* oblongis, sepalis orbicularibus petalis lineari-oblongis pluries brevioribus, staminibus numerosis, filamentis gracilibus, stylodio gracili; *fl. fœm.* depresso-hemisphericis, sepalis late reniformibus accrescentibus, petalisque rotundatis imbricatis, staminodiis minimis, ovario oblongo 1–loculari, stigmatibus 3 sessilibus, fructu parvo ovoideo-oblongo calyce accreto insidente, albumine grosse ruminato.

P. elegans, *Blume Rumphia*, vol. ii. p. 118. *Benth. Fl. Austral.* vol. vii. p. 141.

P. Seaforthia, *Miq. Fl. Ind. Bat.* iii. 21.

?*P.* Capitis Yorki, *Wendl. & Drude in Linnæa*, vol. xxxix. p. 217.

Seaforthia elegans, *Br. Prodr.* p. 267. *Mart. Hist. Nat. Palm.* vol. iii. p. 181, t. 105, 106, 109 (*not Bot. Mag.* t. 4961.*)

Pinanga, Smithii, *Hort.*

Ptychosperma elegans is a native of the tropical east coast of Australia, and some of its outlying islands, from Sandy Isld. in lat. 25 S. to Cape York (the extreme north of the continent) in lat. 11° N. It was discovered by Sir Joseph Banks during Cook's first voyage in 1770, at the mouth of the Endeavour River, and his specimens are now in the British Museum. It is possible that more than one species is included under the name, for my friend Dr. Wendland, in answer to a request of mine for any information he might be able to give me regarding *Pinanga Smithii*, observes that *Ptychosperma elegans*, Mart. is a very tall-growing palm, and must be different from *Pinanga Smithii*. On the other hand, Mueller (Fragmenta, vol. v. p. 48)

* Which is a good figure of *P. Alexandræ*, with the fruit of *P. elegans* copied from Martius.

March 1st, 1894.

speaks of it as a smaller palm than the *P. Alexandræ* (which attains 70-80 ft.), and at vol. viii. p. 222 of the same work he gives 50 ft. as the height of a specimen from Whitsunday Island, with the trunk 4–6 inches in diameter. This latter (4 inches) is that of the trunk of the Kew plant, from which it may be inferred that, as this is its first year of flowering, it will attain a much greater height. But the fact is that the *Ptychospermæ* of Australia require to be carefully studied in their native country, and until this is done *P. elegans* must be regarded as doubtfully identified.

There is no available record of the introduction of *P. elegans* into Kew, where it has been established in the Palm House for a great many years, but it may be presumed that the first imported seeds were received from Allan Cunningham, collected possibly at Sandy (not *Sunday*, as in Fl. Austral.) Island, during King's voyage (1818), to which Cunningham was attached as botanist in the interests of Kew. The name of *Pinanga Smithii*, in all probability originated in some continental gardens to which a young plant had been contributed from Kew, and to which was given the name of the late Curator of that establishment, whose success as a raiser of Palms was famous). The specimen figured is now 13 feet in height, with a trunk four inches in diameter at the base above the roots; the leaves are $6\frac{1}{2}$ ft. long, and the leaflets 2 ft. long by 3 inches wide. It flowered in May, 1893, and did not mature fruit.

Descr.—A rather slender palm, "variously described as low, or very tall," *Benth.*; trunk in the Kew specimen 13 feet high, and 4 inches diam. at the base above the rooting portion. *Leaves* $6\frac{1}{2}$ ft. long, recurved; rachis semilunar in cross section; leaflets 2 ft. long by (the broadest) 3 inches broad, linear, tip very obliquely truncate and toothed, bright green, paler beneath; sheath 18 by 24 in. long by 6–7 in. broad. *Spadix* 12–18 inches long, inserted below the leaves, very shortly peduncled, broadly triangular, repeatedly divided into strict branchlets; peduncle compressed; branchlets slender, terete. *Flowers* sessile, ternate, a fem. between two males. *Male fl.* oblong, and obtuse in bud, when expanded $\frac{1}{2}$ in. in diam.; sepals orbicular; petals oblong, obtuse; stamens very numerous,

3

Tab. 7346.

PELARGONIUM Drummondii.

Native of Western Australia.

Nat. Ord. Geraniaceæ.—Tribe Geranieæ.

Genus Pelargonium, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 273.)

Pelargonium *Drummondii*; suffrutescens, tota molliter patentim pilosa, caule robusto erecto ramoso, foliis longe petiolatis cordato-rotundatis 5-lobis crenato-dentatis rugosis fragrantibus, stipulis amplis crenatis, floribus 1 poll. diam. ad apicem pedunculi elongati congestis brevissime pedicellatis, bracteis brevibus, calycis tubo obconico, lobis ovato-oblongis accrescentibus, petalis sepalis duplo longioribus obovato-spathulatis roseis 2 posticis conniventibus maculis dentriticis rubris notatis, staminibus fertilibus ad 8 exsertis, capsulis 1½-pollicaribus patentim pilosis.

P. Drummondii, *Turcz. in Bull. Mosc.* (1858), vol. i. p. 421.

Bentham in the "Flora Australiensis" (vol. i. p. 299) has included *Pelargonium Drummondii* under *P. australis*, as a robust, large-flowered form of that exceedingly variable plant. Though not disposed to pronounce an opposite view with any approach to conviction, I cannot but think that more evidence in support of an assent is required than is afforded by the copious suites of specimens of *P. australis* from all parts of its wide range of distribution, which are contained in the Kew Herbarium. *P. australis* inhabits all the temperate shores and many inland districts of Australia, New Zealand, and the Islet of Tristan d'Acunha, and sports into eight more or less distinguishable forms connected by intermediates (besides that of *Drummondii*) which have been brought under one by Bentham; they are *P. glomeratum*, Jacq., *inodorum*, Willd., *littorale*, Hueg., *crinitum*, Nees, *stenanthum*, Turcz., *erodiodes*, Hook., *clandestinum*, L'Her., and *acugaticum*, Thou. In its typical form it is a slender, decumbent plant, with leaves 1–1½ rarely 2 in. diam., and flowers about ¼ to ½ in. diam., and, as Bentham observes, it cannot be separated from the S. African var. *anceps* of *P. grossularioides* (*P. anceps*, Ait.). In support of which view it may be confidently assumed that Tristan d'Acunha owes its possession of the species to transport from the neighbouring continent of Africa (the headquarters of the genus), and not to remote Australia.

March 1st, 1894.

To me it appears that *P. Drummondii* is far more distinct from any form known to me of *australis*, than any form of the latter is from *grossularioides*; and that if *Drummondii* is to be merged in *australis*, so should both be in *grossularioides*.

To return to the subject of the plate, it differs from *australis* chiefly in the greater size of all its parts; but this difference is excessive, the largest flowers that I have seen of *P. australis* not exceeding half an inch in diameter, the fruiting sepals 1 inch, and the capsules $\frac{1}{6}$–$\frac{1}{4}$, whereas the dimensions of the same organs in *P. Drummondii* are respectively one to one and a quarter, one half, and one and a half inch. Another character assigned to *australis* is that its leaves are inodorous, whereas those of *Drummondii* are fragrant; before, however, any stress can be laid on this point, the fragrance, or the contrary, of all forms of *australis* must be ascertained.

P. Drummondii was raised from seeds sent to the Royal Gardens, Kew, by Miss Bunbury, of Bunbury, West Australia, a lady who exhibited a beautiful series of paintings of the plants of that country at the late Colonial and Indian Exhibition, and who has contributed valuable collections of seeds to Kew. The seeds were sown in March, 1892, and plants raised flowered in May of the following year.

Descr.—An undershrub 2 ft. or more high, clothed with a soft, more or less glandular fragrant pubescence; branches robust, terete. *Leaves* long-petioled, three to five inches in diameter, orbicular-cordate, 5-lobed, crenate-toothed, upper surface pale green, bullate between the deeply sunk nerves; petiole three to five inches long; stipules very large, reflexed, oblong or orbicular. *Peduncles* three to six inches long, stout; many-fld.; bracts and pedicels very short; flowers crowded, one half to one inch in diameter. *Calyx-tube* obconic, lobes ovate-oblong obtuse or subacute, enlarging in fruit. *Petals* obovate, spathulate, rosy red, two posterior conniving and marked below the middle with dendritic red streaks. *Perfect stamens* about eight, exserted. *Capsule* one to one and a half inch long, softly hairy.—*J. D. H.*

Fig. 1, Calyx and ovary; 2, stamens and pistil; 3, base of young ovary:—*All enlarged.*

anthers small, oblong; pistillode slender. *Fem. fl.* very small, hemispheric; sepals and petals imbricate; staminodes minute; ovary oblong, 1-celled, stigmas 3 sessile. *Fruit* seated on the accrescent calyx, $\frac{3}{4}$ in. long, oblong, crowned with the stigmas. *Seed* ruminate.—*J. D. H.*

Fig. 1, Male fl.; 2 and 3, stamens; 4, pistillode; 5, immature fem. fl.; *all enlarged*; 6, fruit; 7, the same, cut vertically, and 8, transversely, of the *nat. size*; 9, *reduced* figure of the Palm.

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Tab. 7347.

BEGONIA SCABRIDA.

Native of Venezuela.

Nat. Ord. Begoniaceæ.

Genus Begonia, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 841.)

Begonia *scabrida*; fruticosa, patentim pilosa, foliis oblique ovato- v. rotundato-cordatis acutis dentatis supra sparsim subtus ad nervos pilosis, petiolo crasso limbo breviore piloso, stipulis majusculis oblongis obtusis, cyma ampla longe pedunculata dichotome ramosa, pedunculo piloso, ramis ramulisque divaricatis glabris, bracteis minutis linearibus patulis, floribus albis umbellulatis, *masc.* sepalis ovato-rotundatis, petalis multo minoribus oblongis, staminibus innumeris antheris filamentis longioribus, *fl. fem.*, bracteolis minutis ovario appressis, sepalis 5 oblongis obtusis concavis, ovarii glabri ala majore ovata obtusa superne truncata, placentis tripartitis.

B. scabrida, *A.DC. in DC Prodr.* vol. xv. pt. i. p. 367.

Wageneria scabrida, *Klotzsch in Herb. Berol.*

A fine bushy *Begonia*, long cultivated at Kew under the above name, differing somewhat from A. De Candolles' description of *B. scabrida*, in the small size of the petals of the male flowers; and if it is rightly placed in the section to which Klotzsch referred it (*Wageneria*) in the more important character of the bipartite placentas. But M. de Candolle does not appear to have verified this latter point; all he says is, "it would appear that Klotzsch saw entire placentas, from the fact of his having placed it in his genus *Wageneria*." Its nearest affinity is with *B. dichotoma*, Jacq. (*Collectanea*, p. 250; *Icon. Rarior.* vol. iii. p. 18, tab. 619), which it very strongly resembles in all respects, but has flowers more than twice as large.

B. scabrida was no doubt received at Kew upon the distribution of the species after its introduction by the collector Moritz, who visited Venezuela about the year 1837. It is a noble plant, flowering annually profusely in early spring.

Descr.—A bush five feet high, and as much in diameter; branches stout, cylindric, green, copiously hairy. *Leaves* a foot and more in diam., from ovate to orbicular-cordate, acute, very oblique, irregularly toothed, deep green and

hairy above, pale beneath and hairy on the nerves only; petiole shorter than the blade, stout, hairy; stipules an inch long, oblong, tip rounded. *Cyme* a foot broad and more; peduncle long, stout, hairy, green or reddish; branches divaricate, repeatedly divided, glabrous; bracts at the angles very small, slender, spreading, brown. *Flowers* umbelled in the ultimate branches of the cyme; bracteoles setaceous. *Male fl.* three-fourths of an inch in diameter; sepals orbicular-ovate, concave; petals not half as large, oblong, obtuse; stamens very many, in a hemispheric head; anthers linear-oblong, obtuse, filaments short. *Fem. fl.;* sepals 5, about one quarter of an inch long, oblong, obtuse, concave; styles 3, shortly united, bipartite; segments erect, obtuse, straight or slightly twisted, clothed all over with stigmatic hairs. *Capsule* (young) two-thirds of an inch broad, two wings narrow, the third much longer oblong obtuse, upper margin truncate.—*J. D. H.*

Fig. 1, Petal of male fl.; 2, stamens; 3, style; 4, transverse section of ovary:—*All enlarged.*

Tab. 7348.

VERONICA cupressoides.

Native of New Zealand.

Nat. Ord. Scrophularineæ.—Tribe Digitaleæ.

Genus Veronica, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. ii. p. 964.)

Veronica (Hebe) *cupressoides*; fructiculus ramosissimus, ramis cylindraceis cortice atro, ramulis pseud-articulatis viridibus foliisque decussatim oppositis minutissime hirtellis, foliis minutis lepidiformibus paribus remotis ramulis appressis crasse coriaceis ovatis obtusis minute ciliolatis, floribus parvis in capitula pauciflora terminalia aggregatis sessilibus, bracteis foliis consimilibus sed duplo majoribus, calyce subcampanulato cylindraceo breviter inequaliter 4-lobo, lobis obtusis ciliolatis, corollæ violaceæ tubo brevi lobis obovato-oblongis obtusis antico multo minore lineari-oblongo, filamentis elongatis, antheris magnis rubro-fuscis, ovario glaberrimo 4-lobo.

V. cupressoides, *Hook. f. Handb. N. Zeal. Fl.* 212. *T. Kirk in Trans. N. Zeald. Inst.* vol. xi. (1878), p. 464. *Armstr.* vol. xiii. (1880), p. 351. *N.E. Br. in Gard. Chron.* (1888), vol. i. p. 20, f. 4–7 (Excl. F.).

In pursuance of my intention of illustrating, as far as I can, all the hardy New Zealand Speedwells in this magazine, a figure is here given of one of the most curious of the group, and at the same time one of the most polymorphous. As stated under *V. lycopodioides* (Tab. 7338), its heteromorphism (first observed by Mr. Kirk) is the subject of a valuable notice by Mr. N. E. Brown in the *Gardener's Chronicle* cited above, who has described and figured the abnormal state with dilated flat entire lobed or pinnatifid leaves, as occurring under cultivation in Europe.

V. cupressoides is a native of the mountainous districts of the Upper Wairau Valley, in the Middle Island of New Zealand, where it was discovered by the late Dr. Sinclair, at an elevation of 4000 ft.; and on Mt. Tarndale in the Canterbury Alps. It has subsequently been collected in the Wai-au-na Ashburton Valleys by the late Sir J. Haast, Mr. Travers and others; and much further south, on river flats of the Otago district, by Sir James Hector. It has been successfully cultivated for some years in England and Scotland, and specimens have been received at Kew from

various sources, that here figured flowered in the Royal Botanical Gardens of Edinburgh in June 1893.

Descr.—A dwarf, rather tortuous shrub, 6–12 inches high, with a rather stout stem, clothed with black bark, and numerous decussate divaricating green branches with cypress-like foliage; branchlets one half to one inch long, most minutely puberulous, terete, contracted at the nodes. *Leaves* $\frac{1}{10}$–$\frac{1}{8}$ of an inch long, rather shorter than the internodes, to which they are appressed, shortly oblong, tip rounded, very coriaceous, concave ventrally, dorsally convex, very minutely ciliolate. *Flowers* few, small, capitate, quite sessile; bracts about twice as long as the leaves, as long as the calyx-tube, green. *Calyx-tube* subcampanulate, cylindric, glabrous, mouth more or less regularly 2-lipped, lips 2-lobed, lower lip largest, lobes very obtuse. *Corolla* $\frac{1}{6}$ in diam., very pale bluish, tube very short, lobes oblong, dorsal the largest, broadly oblong-obovate, anticous smallest, linear-oblong. *Stamens* far exserted, anthers very large, red-brown. *Ovary* 4-lobed, quite glabrous.—*J. D. H.*

Fig. 1, Branchlets with leaves and flowers; 2, leaf; 3, ovary and style; 4, ovary and disk:—*All enlarged.*

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Tab. 7349.

AMORPHOPHALLUS Elliotii.

Native of Sierra Leone.

Nat. Ord. Aroideæ.—Tribe Pythonieæ.

Genus Amorphophallus, *Blume*; (*Benth. & Hook. f. Gen. Pl.* vol. iii. p. 970.)

Amorphophallus (Podophallus) *Elliotii*; tubere globoso depresso, petiolo elato, laminæ amplæ trisectæ segmentis pinnatisectis lineari-lanceolatis acuminatis, spathæ longe pedunculatæ tubo latissimo doliiforme cylindraceo vix longiore quam lato basi truncato profunde intruso et in conum sulcatum spadicem fulcientem producto, lamina tubo continua eo æquilonga galeata acuta ore valde contracto marginibus incurvis, spadice inclusa longiuscule stipitata, inflorescentia mascula conoidea basi verticilla dua ovariorum gerente, appendice stipitato erecto conoideo obtuso, antheris parvis biporosis, ovariis obovoideis apice contractis stigmate minuto coronatis.

The genus *Amorphophallus* presents many and great differences in the form of the spathe and spadix, and in the arrangements of the organs of the latter, and especially in the structure of the ovary. In all these respects *A. Elliotii* differs very much from its congeners. In no species that I know of is the aperture of the spathe so contracted; in none is the base of the tube so intruded as to present within a cone at the base of the spadix, or is the spadix raised on so long a stipes, or are the ovaries confined to two whorls at the base of the males, nor does any present a single-celled ovary, or a punctiform stigma. It may well be asked whether modifications so many, and that of the ovary so important are not, if taken together, of generic value. Having regard to the variations in the structure of other species, and the great probability of still further modifications being found in as yet undiscovered species, I do not think it would be expedient, at present, at any rate, to create a genus for *A. Elliotii*, and I have therefore restricted myself to proposing a section from it, with the name of *Podophallus*, in allusion to the stipitate spadix and appendix.

A. Elliotii was discovered in forests of Sierra Leone by Mr. G. F. Scott Elliot, Botanist to the Sierra Leone

Boundary Commission, by whom it was sent with many other living plants to the Royal Gardens in 1892. It flowered in a stove in April of the same year, and produced its leaf in the following August.

Descr.—*Tuber* about 4 inches in diameter, oblate, bearing a few bulbils. *Petiole* a foot high, rather slender, pale greyish blue, with elongate reddish-brown blotches; lamina about 18 inches broad, trisect; divisions sessile, pinnatisect; segments 4–8 in. long, linear-lanceolate, acuminate, quite entire, bright green, pale beneath. *Peduncle* like the petiole. *Spathe* very short and broad; tube 2 inches long, and nearly as broad, cylindric, barrel-shaped, dull pink, with pale green spots; base truncate and deeply intruded, drawn up in the middle into a broad cone that supports the spadix; lamina continuous with the tube, but hardly as long, galeate, incurved, with an acute point, dull green, copiously blotched and marbled with dull purple, deep purple within; mouth contracted, with incurved margins. *Spadix* included, stipes half an inch long; male infl. a cone $\frac{3}{4}$ of an inch long, with two whorls of ovaries at its base; anthers minute; appendix stipitate, 1 in. long, erect, conoid, obtuse, pale purple. *Ovaries* globosely ovoid, tip contracted with a punctiform stigma, 1-celled, 1-ovuled.—*J. D. H.*

Fig. 1, Section of tube of spathe of *nat. size*; 2 and 3, anthers; 4, ovary; 5, longitudinal, and 6, transverse section of do.; *all enlarged*; 7, reduced view of leaf.

M S del, J.N Fitch lith.

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Tab. 7350.

TRICHOPUS zeylanicus.

Native of Southern India and Ceylon.

Nat. Ord. Dioscoreaceæ.

Genus Trichopus *Gærtn.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 745.)

Trichopus *zeylanicus*; herba glaberrima, rhizomate brevi, caulibus simplicibus fastigiatis flexuosis trigonis apice bractatis monophyllis paucifloris, petiolo elongato cauli simillimo trigono, lamina lineari-lanceolata oblonga v. ovata acuta acuminata v. obtusa, basi cuneata retusa v. (sæpissime) profunde cordata sinu acuto lobis cordatis, e basi 5–9-costata et transverse venosa, pedunculis gracilibus, floribus nutantibus atro-purpureis, perianthii tubo campanulato, lobis 6 ovato-lanceolatis biseriatis patentibus, staminibus 6, filamentis brevissimis, antheris latis loculis remotis divaricatis, connectivo in processim erectus elongato, ovario infero 3-gonu 3-loculari, loculis 2-ovulatis, stigmatibus 3 crassis bilobis lobis pyriformibus reflexis, fructu indehiscente trialato, seminibus rugosis sulco ventrali profundo exaratis.

T. zeylanicus, *Gærtn. Fruct.* vol. i. p. 44, t. 14. *Beccari in Nuov. Giorn. Bot. Ital.* vol. ii. p. 13, t. 3. *Beddome Ic. Pl. Ind. Or.* p. 68, t. 290. *Hook. f. Fl. Brit. Ind.* vol. vi. p. 297. *Trim. Cat. Ceyl. Pl.* 93.

T. travancoricus, *Bedd. mss. l. c.*

Trichopodium cordatum, intermedium et angustifolium, *Lindl. Bot. Reg.* sub t. 1543.

T. zeylanicum, *Thw. Enum. Pl. Zeyl.* pp. 291, 443.

Podianthus arifolius, *Schnitzl. in Bot. Zeit.* vol. i. (1843), p. 739.

One of the most curious of Indian plants, the affinities of which were long regarded as doubtful, it being first supposed to belong to the Order *Aristolochiaceæ;* and, though now definitey placed in *Dioscoreaceæ*, it ranks as a very anomalous member of the Order, and the only one that is not a climber. Beccari, who has studied its relationship with both Orders, in a very elaborate paper, referred to above, has decided on the latter Order as its true place in the system.

Trichopus zeylanicus was long supposed to be confined to the Island of Ceylon; more recently it has been found (like so many other Cingalese plants) to extend to Travancore, and quite lately Mr. Ridley, F.L.S., Superintendent of the Singapore Botanical Gardens, has sent a living

plant to Kew from Pahang, in the Malayan Peninsula. This, which flowered in June, 1893, is here represented; its flowers are a good deal larger than those of the Ceylon plant, but not than the Travancore one.

Descr.—*Roots* of wiry fibres from a short horizontal stock. *Stems* many from the rootstock, 4–8 inches long, simple, erect, wiry, flexuous, green, trigonous, bearing at the top a tuft of green bracts, a solitary long-petioled leaf, and one or more long-peduncled flowers. *Leaves* 2–8 inches long, from linear-lanceolate to ovate- or triangular-cordate, obtuse, acute, or acuminate, 5–9-nerved from the base, dark green above, pale beneath; base cuneate, retuse, or more often deeply 2-lobed, lobes rounded, sinus acute; nerves deeply sunk above, slender but prominent beneath, venation transverse, loose; petiole like a continuation of the stem, 1–8 inches long. *Peduncles* 1–3 inches long, slender, erect, green, or mottled with red-purple. *Flowers* cernuous, $\frac{1}{2}$–$\frac{2}{3}$ in. diam., dark purple. *Perianth* salver-shaped, with a short tube and six-ovate-lanceolate obtuse, nearly flat lobes. *Stamens* 6, sunk in the tube of the perianth; filaments very short, incurved; anther of two oblong cells, adnate to two diverging lobes of the connective, which is produced upwards into a subulate process, and dorsally below into two tubercles. *Ovary* inferior, turbinate, 3-keeled, 3-celled, cells 2-ovuled; ovules superposed, pendulous; stigmas 3, subsessile on the top of the ovary, each of two pyriform horizontal lobes. *Fruit* subrhomboid, coriaceous, 3-winged, crowned with the withered perianth, indehiscent. *Seeds* oblong, transversely rugose, and deeply grooved in the ventral face.—*J. D. H.*

Fig. 1, Flower with the perianth removed; 2, dorsal, 3 and 4, front and lateral view of a stamen; 5, ovary; 6, vertical section of ditto:—*All enlarged.*

del. J.N.Fitch lith.

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Tab. 7351.

LOWIA MAXILLARIOIDES.

Native of the Malay Peninsula.

Nat. Ord. Scitamineæ.—Tribe Lowieæ.

Genus Lowia (*Scortech. in Nuov. Giorn. Bot. Ital.* vol. xviii. p. 308, tab. 11.)

Lowia *maxillarioides*; acaulis, rhizomate breviter repente, foliis distichis longe petiolatis oblongis acutis, floribus in paniculam laxam radicalem dispositis, bracteis binis, floribus per paria evolutis bractea interiori longiori tubuloso, calycis tubo cylindrico, lobis 3 oblanceolatis æqualibus patulis atro-brunneis, petalis 2 superioribus minutis oblongis, inferiori (labello) porrecto oblongo cuspidato basi cuneato, staminibus 5, filamentis brevibus crassis, antheris linearibus apice emarginatis, styli ramis stigmatosis brevibus, fructu oblongo acuto chartaceo, seminibus atro-brunneis globosis.

Protamomum maxillarioides, *Ridley in Trans. Linn. Soc.* ser. 2. *Bot.* vol. iii. p. 383, tab. 66.

The genus *Lowia*, which was named by Father Scortechini after Sir Hugh Low, C.M.G., forms a very interesting connecting link between the Gingers and the Bananas. It has the habit and foliage of the former; but five stamens are developed instead of one, and I quite agree with Mr. Ridley that it should be regarded as forming a distinct tribe of the natural order *Scitamineæ*. The original species, *L. longiflora*, Scortech., a native of Perak, has linear calyx-lobes four inches long. A second species from Borneo was described by Mr. N. E. Brown, in the *Gardener's Chronicle* for 1886, under the name of *Orchidantha borneensis*. I cannot separate Mr. Ridley's plant from these generically. *L. longiflora* has a small appendage to the anther; but this is wanting in the Bornean species, as well as in the present plant, and the general plan of structure in all the three is identical.

Since he took charge of the Botanical Gardens of Singapore, Mr. Ridley has made several expeditions to the east side of the Malay Peninsula, the botany of which was before almost unknown. He has there discovered a large number of novelties, a full account of which will be found in the part of the "Transactions of the Linnean Society"

April 1st, 1894.

above cited. The present plant came from the island of Palau Tawar. Our drawing was made from a living plant which he sent home, and which flowered at Kew in June, 1893.

Descr.—Acaulescent. *Rootstock* shortly creeping, tufts crowded. *Leaves* distichous; petiole long, erect; blade oblong, acute, moderately firm, eight or nine inches long, the laxly-disposed parallel main veins connected by fine cross-bars. *Inflorescence* a lax panicle, with two or three branches, which springs direct from the rootstock; flowers in successive pairs; bracts two, the outer short, the inner one longer and tubular. *Calyx* dark brown, finally nearly black, tube cylindrical; lobes three, equal, spreading, oblanceolate, an inch and a half long. *Petals* three; two upper small, ascending, oblong, cuspidate; lower much larger, spreading, obovate, with a cuneate base. *Stamens* five, erect, an eighth of an inch long; filaments shorter than the linear emarginate anthers. *Ovary* 3-celled; style short, with three small toothed stigmatose branches, which are channelled down the face. *Capsule* oblong, acute, chartaceous, two inches long. *Seeds* the size of a pea, subglobose, dark brown.—*J. G. Baker.*

Fig. 1, Petals; 2 and 3, stamens and style; 4, vertical section of ovary; 5, ovules, with enveloping arillus:—*All enlarged.*

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TAB. 7352.

GYNERIUM SACCHAROIDES.

Native of Tropical America.

Nat. Ord. GRAMINEÆ.—Tribe FESTUCEÆ.

Genus GYNERIUM, *Humb. & Bonpl.*; (*Benth. & Hook. f. Gen. Pl.* vol. iii. p. 1178.)

GYNERIUM *saccharoides*; caulibus cæspitosis 10–15 pedalibus robustis, foliis distichis 4–5-pedalibus 1–2 poll. latis patenti-decurvis planis serrulatis glabris caudato-attenuatis coriaceis multistriatis, costa valida, vaginis patentim subbifariam pilosis ore ciliato, panicula 5–6-pedali cernua ramosissima effusa ramis ramulis pedicellisque gracilibus glabris, spiculis masculis glaberrimis glumis I. et II. lanceolatis, III. et IV. brevibus subæqualibus oblongis, femineis laxe villosis glumis I. et II. anguste lanceolatis II. multoties longiore.

G. saccharoides, *Humb. & Bonpl. Pl. Æquinoct.* vol. ii. p. 112, t. 215. *H. B. & K. Nov. Gen. & Sp.* vol. i. p. 149. *Nees in Mart. Fl. Bras.* vol. ii. p. 462. *Kunth Enum. Fl.* vol. i. p. 252, & *Suppl.* p. 194. *Steud. Syn. Gram.* 197 [W. Wats.] *in Gard. Chron.* (1888), ii. 416.

G. sagittatum, *Beauv. Agrostogr.* p. 138, et t. xxiv. f. 6 procerum.

Arundo sagittata, *Pers. Syn.* vol. i. p. 102?

A. saccharoides, *Griseb. Fl. Brit. Fl. Ind.* 530.

Saccharum sagittatum, *Aubl. Pl. Guian.* vol. i. p. 50?

The magnificent grass here figured is that which yields the ornamental feathery grass used for the decoration of rooms, and which, after being imported into London, are dyed of various colours, and sold as "Uva-grass." It has a wide range in distribution, abounding along river banks in the West Indies, Guiana, Brazil, and no doubt all intervening countries. The genus to which it belongs is a very small one, most closely allied to the European *Arundo*, containing only three or four species, amongst which is the *G. argenteum*, the so-called "Pampas Grass" of our gardens. These two noble grasses, one a native of tropical, the other of temperate S. America, are equally attractive, and yet so different in habit and appearance, that they can never be regarded as rivals for decorative purposes.

For the following note on *Gynerium saccharoides*, as grown at Kew, I am indebted to Mr. Watson, premising

that the original plant was sent to the Royal Gardens in 1875 by Dr. Capanema, of Rio de Janeiro, and flowered, for the first time, several years ago :—" It is planted in a large pot, submerged in the tank of the Victoria House, where it produces numerous erect stems, the tallest of which are twelve feet high, solid, one inch in diameter, clothed below with the tightly-clasping brown leaf-sheaths, and bearing above the middle distichous leaves four to five feet long, and an inch in width. Stolons are produced abundantly from the base, which, if not removed as they appear, would soon occupy the whole tank. It flowered from September, 1893, producing only a single panicle, which was female."

In the following description the characters of the female panicle and spikelets are taken from the living Kew plant, those of the male spikelets from Herbarium specimens.

Descr.—*Stems* densely tufted, simple, twelve to fifteen feet high, erect, solid, an inch or more in diameter at the base. *Leaves* four to five feet long, distichous, spreading and decurved, linear, narrowed into a long flagelliform tip, serrulate, striated, many-nerved, bright green, not glaucous; midrib stout; base semi-amplexicaul; sheaths hirsute with two broad bands of long spreading or deflexed hairs; ligule a ring of hairs. *Panicle* of the female plant drooping, five to six feet long, excessively branched; branches, branchlets, and pedicels very slender, glabrous. *Male spikelets* quite glabrous, much smaller than the female, 2-fld., lanceolate, glumes I. and II. subequal, III. and IV. equal, ovate, tip rounded or subaristate, each diandrous. *Fem. spikelets* loosely clothed with very long, flexuous hairs; glumes extremely narrow, I. linear-lanceolate, acuminate; II. twice as long, gradually narrowed into a long, strict, subulate point; III. and IV. equal, longer than gl. I., shorter than II., very narrowly subulate. *Ovary* short, oblong; styles and stigmas very short.—*J. D. H.*

Fig. 1, Portion of male panicle (*nat. size*); 2, male spikelet; 3, flowering **glumes; 4, palea; 5, stamens** and rudimentary ovary from the same—*enlarged*:—**6, fem. spikelet**; 7, flowering glumes from do.; 8, tip of palea; **9, ovary and rudimentary stamen from the same:—*All enlarged.***

M. S del. J. N. Fitch lith.

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Tab. 7353.

SESBANIA PUNICEA.

Native of South Brazil and Argentina.

Nat. Ord. Leguminosæ.—Tribe Galegeæ.

Genus Sesbania, *Pers.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 502.)

Sesbania (Daubentonia) *punicea*; frutex v. arbuscula glabra, foliis pinnatis, rachi gracili, foliolis 8–15-jugis oppositis oblongis obovato-oblongisve obtusis apiculatis, stipulis subulatis, racemis nutantibus multifloris, bracteolis setaceis, floribus aurantiaco-coccineis, calyce turbinato truncato sub 5-dentato, vexillo amplo rotundato reflexo, alis falcato-oblongis obtusis, carinæ petalis alis æquilongis valde incurvis unguibus, calyce duplo longioribus, legumine stipitato crasso tetragono et tetraptero 4–10-spermo.

S. punicea, *Benth. in Mart. Fl. Bras.* vol. xv. pars i. p. 43.

Daubentonia punicea, *DC. Mem. Legum.* p. 285; *Prodr.* vol. ii. p. 267.

Piscidia punicea, *Cav. Icon.* iv. t. 316.

Æschynomene miniata, *Orteg. Nov. Pl. Hort. Bot. Matr. Dec.* p. 28.

It is singular that so beautiful a plant as that here figured, and one occurring abundantly over a very large area in the longest settled and most accessible regions of temperate South America (being of frequent occurrence close to the city of Buenos Ayres) should not have become long ago a favourite in English conservatories. It was introduced into Europe in the last century, and was figured by Cavanilles in 1797, as a native of New Spain (Mexico). It was again published by Ortega in his "Descriptions of new and rare plants of the Madrid Botanical Gardens" in the year 1800, as *Eschynomyne miniata*, with the same locality, and the name is to be found in Loudon's "Hortus Britannicus" (1830) as *Daubentonia punicea* (that given to it by De Candolle in 1825) where it is mentioned as a "moist stove" plant, introduced in 1820, and still as a native of New Spain.

In so far as I have ascertained the first person who solved the problem of the genus and native country of *S. punicea* was Bentham, whose unrivalled knowledge of

the Leguminosæ led him to identify an Argentine plant, with the supposed Mexican *Piscidia* of Cavanilles, and *Daubentonia* of De Candolle, and refer it to its proper genus *Sesbania*. This is in Martius' "Flora Brasiliensis," where *S. punicea* is stated to extend from the Rio Grande do Sul in Brazil southward to Buenos Ayres, and westwards to the Parana river. According to a statement in the Kew Herbarium it occurs frequently on river banks.

Seeds of *S. punicea* were obligingly sent to the Royal Gardens by A. Christie, Esq., of Trinity Lodge, Forest Hill, in 1889; from these plants were raised and placed in the Temperate House, where the specimen here figured flowered in October, 1893.

Descr.—A laxly branched glabrous bush or small tree, with slender terete branches, drooping leaves, and racemes of large orange-red flowers. *Leaves* six to eight inches long; short petiole and long rachis very slender; leaflets, eight to fifteen pairs with an odd one, opposite, subsessile, oblong or obovate-oblong, tip rounded, apiculate, nerves spreading; stipules setaceous, caducous. *Flowers* large, in a drooping, shortly peduncled raceme six to ten inches long, scarlet in bud, but paleing as they open to orange; bracteoles setaceous; pedicels one-fourth to half an inch long. *Calyx* turbinate, truncate, very shortly lobed. *Standard* orbicular, nearly an inch broad, recurved. *Wings* two-thirds of an inch long, oblong, obtuse. *Keel-petals* as long as the wings, strongly falcate, claws very long; limb oblong, obtuse. *Ovary* slender, strongly incurved, style long, stigma terminal. *Legume* stipitate, two to four inches long, acuminate, 4-angled; angles with coriaceous wings. *Seeds* 4 to 10, globosely reniform.—*J. D. H.*

Fig. 1, Flowers with the petals removed; 2, keel-petal; 3, pistil:—*all enlarged*; 4, fruit and 5, transverse section of do. (from Herbarium specimen) *of the natural size.*

M S del. J.N. Fitch lith.

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Tab. 7354.

OSTEOMELES anthyllidifolia.

Native of Eastern Asia and the Pacific Islands.

Nat. Ord. Rosaceæ.—Tribe Pomeæ.

Genus Osteomeles, *Lindl*; (*Benth. & Hook. f. Gen. Pl.* vol. i. p. 628.)

Osteomeles *anthyllidifolia*; fruticulus sempervirens, ramulis rigidis, foliis pinnatis breviter petiolatis, foliolis ad 12-jugis parvis sessilibus alternis oblongis obovato-oblongisve obtusis apiculatis coriaceis utrinque v. subtus subsericeo pilosis v. fere glaberrimis et lucidis, rachi trigono medio sulcato, floribus in corymbos terminales axillares paucifloros dispositis albis, sepalis ovatis subacutis, petalis sepalis duplo longioribus obovato-oblongis patulis, staminibus subbiseriatis petalis brevioribus, drupis pisiformibus coccineis sepalis persistentibus coronatis.

O. anthyllidifolia, *Lindl. in Trans. Linn. Soc.* vol. xiii. p. 98, t. 8. *DC. Prodr.* vol. ii. p. 633. *A. Gray in Mem. Am. Acad.* N.S. vi. (1857), 388. *Maxim. in Mel. Biol.* vol. ix. p. 182. *Hemsl. in Bot. Challenger Exped.* vol. i. *Introd.* p. 18, *in Journ. Linn. Soc.* vol. xxiii., p. 265, and vol. xxviii. p. 56. *Gard. Chron.* (1893), p. 743. *Lemoine Prix Cour.* n. 124 (1893), p. iii.

O. subrotunda, *C. Koch in Miq. Ann. Mus. Bot. Lugd. Bat.* vol. i. p. 250. *Miq. l. c.* p. 41.

Pyrus anthyllidifolia, *Smith in Rees Cyclop.* vol. xxix. n. 29.

The genus *Osteomeles* was founded by Lindley on the plant here figured, which was discovered in Hawaii (Sandwich Islands) by Archibald Menzies, the surgeon and naturalist who accompanied Captain Vancouver, R.N., in his voyage to survey the coasts of N.W. America in 1792. Lindley's figure, in the "Linnæan Transactions," represents a different form of the plant from that given in our plate, the leaflets and petals being more distant, obovate-spathulate, and the filaments longer. The same species has been found to extend westward as far as Burma, availing itself, as it were, by stepping-stones, across the Pacific of Bonin, and the Loo-choo Islds., and thence extending to China, where it inhabits the mountains of Yunnan, and the Shan States, where it was found by Col. Sir Henry Collett, K.C.B., when serving in the last Burmese war. What is even more curious, is the southern extension of this pecular little shrub far into the Southern hemisphere,

namely, to Pitcairn's Isld. (23° S. and 150° W.), and Mangaia Isld. 22° S. 158° W. It varies a good deal in the hairiness of its leaves, in the Sandwich Islands especially, from nearly glabrous to silkily tomentose beneath, and in the breadth of the leaflets. The genus is closely allied to *Cratægus* and *Cotoneaster;* and in the uni-ovulate cells of the ovary to *Amelanchier*. All the other species (about seven) are Andean, and have simple leaves.

A plant of *Osteomeles anthyllidifolia* was received in March, 1892, at Kew, from the Jardin des Plantes, Paris, where it was raised from seed sent by the Abbé Delavay from Yunnan. It flowered in a cool greenhouse in May of the following year, and, as Mr. Watson informs me, was transferred to the open border against a south-east wall in October of the same year, where it grows freely, fruits, and forms an elegant evergreen (not deciduous, as described in Floras) little shrub. Hitherto it has proved perfectly hardy, carrying healthy evergreen leaves, notwithstanding the frosts (22° in one night) of last December.

Descr.—A small evergreen bush, five or six ft. high, much branched; branches stout, clothed with a dark brownish-black bark, branchlets, leaves, pedicels and calyx loosely softly hairy. *Leaves* two to four inches long, by $\frac{1}{4}$–$\frac{1}{2}$ inch broad, spreading and recurved, shortly petioled, impari-pinnate; pinnules in pairs, $\frac{1}{6}$–$\frac{1}{4}$ in. long, opposite and alternate, elliptic, apiculate, yellowish green, paler beneath; rachis trigonous, channelled on the upper surface; stipules small, subulate, deciduous. *Flowers* in short, subsessile, terminal corymbs, shortly pedicelled, about two-thirds of an inch in diameter, white; bracteoles minute. *Calyx-tube* broadly turbinate; lobes ovate, subacute, persistent. *Petals* obovate-oblong, twice as long as the sepals, concave. *Stamens* very many, shorter than the petals; anthers small, didymous, yellow. *Ovary* 5-celled; styles hairy, stigmas small, oblique. *Drupe* globose, crowned by the calyx, dark red; pyrenes five, crustaceous, dimidiate-obovate.—*J. D. H.*

Fig. 1, Portion of leaf; 2, vertical section of flower; 3, stamen; 4, fruiting corymb *of the natural size*; 5, pyrene:—All but fig. 4 *enlarged*.

M.S. del. J.N. Fitch lith.

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Tab. 7355.

HILLIA tetrandra.

Native of Jamaica, Cuba and Mexico.

Nat. Ord. Rubiaceæ.—Tribe Cinchoneæ.

Genus Hillia, *Jacq.*; (*Benth. & Hook. f. Gen. Plant.* vol. ii. p. 39.)

Hillia *tetrandra*; frutex glaberrimus, ramulis teretibus, foliis sessilibus ellipticis obovatis v. spathulato-oblanceolatis obtusis basi cuneatis pallide viridibus lucidis, costa infra medium crassa nervis erecto-patentibus, floribus solitariis terminalibus sessilibus 2-bracteatis et 4 bracteolatis tetrameris albis, bracteis pollicaribus late-oblongis membranaceis albis caducis, calycis tubo cylindraceo 8-sulcato, lobis 2–4 linearibus erectis obtusis, corollæ magnæ albæ tubo gracili 2½-pollicari, lobis ovato-rotundatis recurvis triplo longiore, fauce modice dilatata, staminibus fauce corollæ inclusis, antheris sessilibus lineari-oblongis, stylo brevi, stigmatibus linearibus, capsulæ valvis demum tortis.

H. tetrandra. *Swartz Prodr. Veg. Ind. Occ.* 58; *Fl. Ind. Occ.* vol. i. p. 630; *Ic. Pl. Ind. Occ.* t. xi. *DC. Prodr.* vol. iv. p. 351. *Ait. Hort. Kew Ed.* 2, vol. ii. p. 315. *Griseb. Fl. Brit. W. Ind.* p. 325.

?H. tuxtlensis, *Fl. Mex. ined. ex DC. l. c.*

The genus *Hillia* commemorates the services rendered to Botany by the more sumptuous than scientific works of the all but forgotten Sir John Hill, who was successively apothecary, botanist, stage actor, dramatist, novelist, essayist, physician, quack doctor, and translator of "Theophrastus on Gems," but who is perhaps best remembered as the traducer of the Royal Society, for election to which body he vainly tried to get proposers. He died in 1775. His best claim for recognition is his "Hortus Kewensis," a catalogue of the plants cultivated in the Royal Gardens, Kew, of which the first edition was published in 1779, and dedicated to Augusta, Princess of Wales.

The only two species of *Hillia*, *H. longiflora* and that here figured, have long been known in cultivation. The former was introduced in 1789, and is figured on t. 721 of this work. *H. tetrandra* was brought to Kew in 1793 from Jamaica in H.M. *Providence* by Captain Bligh, on his return from his second voyage, when he introduced the Bread-fruit tree into that island. Like *H. longiflora* it is an epiphyte, growing on mossy tree-trunks in the

mountainous districts of Jamaica and Cuba. It has been very recently collected near the city of Teapa, in Mexico (growing there also on trunks of trees) by Mr. J. N. Rovirosa, from whom there are specimens in the Kew Herbarium. The *H. tuxtlensis* of Mexico, alluded to by De Candolle, as having two bracts and two calyx lobes, will in all probability prove to be *H. tetrandra*.

H. tetrandra was obtained by the Royal Gardens from Messrs. V. Lemoine and Son, of Nancy, in March, 1893, and it flowered in October of the same year, when only about a foot in height.

Descr.—A low shrub, described as three to four ft. in height; branches terete, smooth, branchlets green. *Leaves* sessile, 2–3 inches long, variable in breadth, from broadly elliptic to spathulate or oblanceolate, obtuse, or rounded at the tip, base cuneate, pale green on both surfaces, rather deeper above; midrib thickened below the middle, suddenly slender beyond it; nerves 6–8 pairs, obliquely ascending; stipules oblong, caducous. *Flowers* solitary, terminal, sessile, white, fragrant, bibracteate. *Bracts* an inch long, oblong, rounded at the tip, erect, concave, veined, white, membranous, caducous; bracteoles 4, minute, in opposite pairs, oblong, obtuse, one pair much the largest. *Calyx-tube* cylindric, 8-grooved; sepals 2 or 4, half an inch long, narrowly linear-oblong, obtuse, erect, green. *Corolla-tube* $2\frac{1}{2}$ in. long, cylindric, slightly swollen below the mouth; lobes nearly an inch broad, broadly ovate, obtuse, recurved. *Anthers* 4, sessile, inserted half an inch below the mouth of the tube, linear. *Ovary* 2-celled; style equalling the calyx-lobes, stigmas linear. *Capsule* several inches long, slender, terete.—*J. D. H.*

Fig. 1, Bracteoles, ovary, calyx-segments, disk and style; 2, upper portion of corolla-tube and stamens; 3, transverse section of the ovary:—*All enlarged.*

M.S. del. J.N.Fitch lith.

Tab. 7356.

TIGRIDIA violacea.

Native of Mexico.

Nat. Ord. Irideæ.—Tribe Moræeæ.

Genus Tigridia, *Ker.*; (*Benth. et Hook. f. Gen. Plant.* vol. iii. p. 690.)

Tigridia *violacea*; bulbo oblongo parvo tunicis membranaceis brunneis, foliis 2–3 linearibus erectis glabris plicatis, caule gracili 1–2-cephalo, spathæ valvis oblongo-lanceolatis viridibus, floribus 4–5-nis, pedicellis elongatis, perianthio violaceo segmentis exterioribus lamina orbiculari ungue lato cuneato pallido punctis parvis violaceis decorato, segmentis interioribus multo minoribus, antheris arcuatis oblongo-lanceolatis columnâ filamentorum æquilongis, styli ramis profundo bifidis patulis.

T. violacea, *Schiede, ex Schlecht. in Otto & Dietr. Gartenzeit* (1858), p. 233. *Klotzsch in Ic. Pl. Rar. Hort. Berol.* 50, t. 20. *Planch. in Flore des Serres*, t. 998. *Baker in Journ. Linn. Soc.* vol. xvi. p. 136; *Handb. Irid.* p. 68.

Beatonia purpurea, *Herb. in Bot. Mag.* sub t. 3779.

In addition to *Tigridia Pavonia* and its near ally *T. Pringlei* (*Bot. Mag.* tab. 7089) there are six small-flowered species, which behave in the same way in their flowering as the old well-known type of the genus. They nearly all inhabit the mountains of Mexico. Though the present plant was introduced into cultivation by Ehrenberg more than fifty years ago, it is still but little known. The wild specimens in the Kew Herbarium are from Yucatan, gathered by Linden and Chiapas, gathered by Ghiesbreght. The Royal Gardens received the bulbs not long ago from Messrs. Pringle and Horsford, of Vermont. It flowered in a bed in the open air last July.

Descr.—*Bulb* oblong, under an inch in diameter; outer tunics brown, membranous, produced above its neck. *Basal leaves* two or three, erect, linear, glabrous, very plicate, a foot long, narrowed gradually to the point. *Stem* slender, erect, bearing one or two clusters of flowers. *Outer spathe-valves* oblong-lanceolate, subequal, green, two inches long. *Flowers* four or five in each spathe, fugitive, opening successively; pedicels long, finally stiffly erect. *Perianth* two inches in diameter; outer segments

with a suborbicular violet blade, and broad whitish cuneate claw, spotted with violet; inner segments much smaller than the outer. *Filaments* united in a short cylindrical column; anthers arcuate, oblong-lanceolate. *Style-branches* deeply bifid, spreading, subulate.—*J. G. Baker.*

Fig. 1, Inner segment of perianth; 2, stamens and style; 3, style with the stamens cut away:—*All enlarged.*

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Tab. 7357.

SANSEVIERIA Kirkii.

Native of South-east Tropical Africa.

Nat. Ord. Hæmodoraceæ.—Tribe Ophiopogoneæ.

Genus Sansevieria, *Thunb.*; (*Benth. et Hook. f. Gen. Plant.* vol. iii. p. 679.)

Sansevieria Kirkii; rhizomatosa, foliis in rosulis 3–4 oblanceolatis 2–3-pedalibus rigide coriaceis sordide viridibus obscure albo maculatis rubro-brunneo marginatis dimidio superiori subplanis deorsum crassis facie canaliculatis dorso convexis striis 5 subtilibus verticalibus percursis, pedunculo foliis breviori, racemo congesto subglobose, bracteis primariis ovatis, perianthii tubo viridulo cylindrico 4–5-pollicari, lobis oblanceolatis tubo 4–5-plo brevioribus, staminibus lobis aequilongis, stylo protruso apice stigmatoso capitato.

Sansevieria Kirkii, *Baker in Kew Bullet.* 1887, No. 5, p. 3, fig. 3, et p. 8.

This new species of Bowstring Hemp is intermediate in the character of the leaf between *S. guineensis* and *S. zeylanica*, whilst in flower it substantially agrees with *S. longiflora*, Sims (*Bot. Mag.* t. 2634). It was sent (living plants) by Sir John Kirk, F.R.S., in 1881 to the Royal Gardens, Kew, from the neighbourhood of the coast of the African mainland opposite the island of Zanzibar. It was briefly described provisionally in the first volume of the *Kew Bulletin*, but at that time the flower was not known. It flowered for the first time in the Palm House at Kew in February, 1893, after having been in cultivation twelve years. Messrs. Ide and Christy reported upon the leaves which they examined in 1887 that they yielded fibre 1.69 per cent. in weight, as compared with the green leaf, and that the fibre was rather stout, but very clean and good in colour, and of fair strength, and that its value in the market at that date was 27*l.* per ton.

Descr.—*Rootstock* a stout rhizome. *Leaves* not more than three or four to a tuft, oblanceolate, two or three feet long, three inches broad above the middle, narrowed gradually to an inch above the base, rigidly coriaceous, dull green, obscurely mottled with white, bordered with a

narrow red-brown line, nearly flat on both sides in the upper half, thickened and deeply channelled down the face towards the base, rounded on the back, and marked with five slender vertical grooves. *Peduncle* much shorter than the leaves, bearing several ascending ovate, greenish bract leaves. *Inflorescence* a densely congested subglobose raceme, six or eight inches in diameter; primary bracts ovate, greenish; flowers about six to each primary bract. *Perianth-tube* cylindrical, greenish-white, four or five inches long; lobes oblanceolate, about an inch long. *Stamens* as long as the perianth-lobes. *Style* protruded beyond the tip of the lobes; stigma capitate.—*J. G. Baker.*

Fig. 1, Base of the leaf, *life size*; 2, perianth-lobe and two stamens; 3, anther; 4, ovary, 5, stigma; 6, vertical section of ovary :—*all enlarged*; 7, whole plant, ***much reduced.***

M. S. del, J.N. Fitch lith.

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Tab. 7358.

CAMPANULA EXCISA.

Native of the Valais Alps.

Nat. Ord. Campanulaceæ.—Tribe Campanuleæ.

Genus Campanula, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. ii. p. 561.)

Campanula (Eucodon) *excisa*; perennis, glaberrima gracillima, caulibus subsimplicibus paucifloris, foliis (radicalibus 0) sparsis linearibus obtusis remote denticulatis, floribus longe gracile pedicellatis nutantibus, calycis glabri tubo brevi turbinato lobis setaceis patulis corolla campanulata coerulea triplo brevioribus, corollæ lobis ovatis subacutis marginibus infra medium incurvis sinubus rotundatis, filamentis brevibus dilatatis ciliatis, capsula pedicellata nutante obconica.

C. excisa, *Schleich. ex Murrith, Guid. du Voy. en Valais*, pp. 33, 35. *DC. Cat. Hort. Monsp.* (1814) p. 86. *Lodd. Bot. Cab.* t. 561. *Reichb. Pl. Crit.* vol. i. t. 78. *Gaud. Fl. Helvet.* vol. ii. p. 147, t. 2. *A.DC.* in *DC. Prodr.* vol. vii. p. 472. *Masters in Gard. Chron.* (1893) vol. ii. p. 307, f. 53.

A very elegant plant, of which the published figures, with the exception of the woodcut in the *Gardener's Chronicle*, are so exceptionally bad, that it would be impossible to recognize the species by them. Its habit is that of our common *Harebell*, *C. rotundifolia*, but it wants the broad radical leaves of that plant, and the lobes of the corolla which are separated by a wide rounded sinus are involute at the base, giving a dark shade of colour to each sinus, which is difficult to represent in a drawing, without giving the idea of there being deep blue spots between each pair of lobes.

Though abundant in some part of the Alps, especially in the Monte Rosa district of the Valais, *C. excisa* is by no means a common Swiss plant. It is mentioned in A. de Candolle's "Geographie Botanique" (p. 587) as an example of his "Espèces a aire très petite," though its limits are not so narrow as the author supposed. There are many specimens of it in the Kew Herbarium from the above region, and only one from East or West of it, namely from Mt. Cenis. None of the native examples are much more than half the height which the specimens grown at Kew

have attained, and which were brought by Mrs. Thiselton Dyer from the Simplon and Saasthal Valleys in 1892, and flowered in the rock-work of the Royal Gardens in June, 1893.

Descr.—Quite glabrous. *Stems* very slender, erect from a perennial root, 2–8 inches high, nearly simple except at the tip, leafy all the way up, few-flowered. *Leaves* all cauline (except no doubt in seedling or very young states) about an inch long by one-tenth of an inch broad, narrowly linear or slightly enlarging upwards, remotely toothed. *Flowers* nodding, pale bright violet-blue, with five translucent spots between the base of the corolla lobes. *Calyx-tube* very short, turbinate, ribbed; lobes subulate, horizontally spreading. *Corolla* two-thirds of an inch long, exactly campanulate, 5-angled, divided for one-third way into 5 cordately ovate acuminate suberect lobes, with incurved margins at the base, and rising into an interposed mucro between the adjacent lobes; the interspaces hence represent a cordiform perforation of the corolla tube. *Filaments* very short, broad, ciliate; anthers linear-oblong. *Style* short, stout; stigma cylindric, with 3 recurved lobes. —*J. D. H.*

Fig. 1, Flower with the corolla removed; 2, portion of corolla laid open; 3, transverse section of the ovary:—*All enlarged.*

M.S. del, J.N. Fitch lith

Vincent Brooks, D... Sou...

Tab. 7359.

CARAGUATA conifera.

Native of Ecuador.

Nat. Ord. Bromeliaceæ.—Tribe Tillandsieæ.

Genus Caraguata, *Lindl*; (*Benth. et Hook. f. Gen. Plant.* vol. iii. p. 668.)

Caraguata *conifera*; acaulis, foliis 15–20 dense rosulatis lanceolatis chartaceis viridibus immaculatis parce lepidotis 2–3-pedalibus basi dilatatis apice deltoide acuminato, pedunculo valido crebre foliato foliis longiori, floribus in capitulum densum simplicem globosum aggregatis, bracteis primariis unifloris ovato-lanceolatis dense imbricatis splendide ruberis apice sæpe luteo maculatis, calycis tubo brevi lobis oblongis, corollæ luteæ tubo subcylindrico calyce longiori lobis oblongis, staminibus lobis brevioribus, filamentis brevissimis applanatis, stylo elongato ramis stigmatosis undulatis.

Caraguata conifera, *André Enum. Bromel.* p. 5; *Bromel. Andr.* p. 47, tab. 15. *Baker Handb. Bromel.* p. 145.

The genus *Caraguata* has entirely the habit of *Tillandsia*, from which it differs only by its gamopetalous corolla. At the date of the publication of the third volume of Bentham and Hooker's "Genera Plantarum" (1883) only five species were known, now the number has been raised to about forty, principally by discoveries made by our excellent correspondent, Monsieur Edouard André in his explorations of New Grenada and Ecuador. The Royal Gardens are indebted to him for the specimen of the present plant, from which our drawing has been made. It was discovered in 1882 by Monsieur H. Poortman near Zamora, in Southern Ecuador. It is nearly allied to the old well-known West Indian *C. lingulata*, on which Lindley founded the genus, but is much larger in all its parts, with persistent bracts of the most brilliant scarlet. It was sent by M. André to Kew in August, 1893, and was drawn when in full flower in September.

Descr.—Acaulescent. *Leaves* about twenty in a dense rosette, lanceolate, chartaceous, bright green, very slightly lepidote, two or three feet long, two inches broad at the middle, dilated at the base, narrowed to a deltoid acumi-

nate tip. *Peduncle* stiffly erect, central, overtopping the leaves, hidden by the imbricated ascending lanceolate bract-leaves. *Inflorescence* a dense, simple, globose capitulum, about three inches in diameter; bracts densely imbricated, ovate-lanceolate, erect, one-flowered, about two inches long, bright scarlet, often tipped with yellow. *Calyx* an inch long; tube short; lobes oblong. *Corolla* pale yellow; tube subcylindrical, longer than the calyx; lobes oblong. *Stamens* inserted at the throat of the corolla-tube, shorter than the lobes; filaments very short, flattened. *Ovary* ovoid; style long, with three short, much undulated stigmatose branches. *Capsule* cylindrical, apiculate, an inch and a half long.—*J. G. Baker.*

Fig. 1, Bract and flower; 2, vertical section of corolla, with stamens; 3, front view of anther; 4, back view of anther; 5, pistil:—*all more or less enlarged.*

M.S. del, J.N. Fitch lith

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Tab. 7360.

VERONICA anomala.

Native of New Zealand.

Nat. Ord. Scrophularineæ.—Tribe Digitaleæ.

Genus Veronica, *Linn.*; (*Benth. & Hook. f. Gen. Pl.* vol. ii. p. 964.)

Veronica (Hebe) *anomala*; frutex erectus, ramosissimus, glaberrimus, ramulis gracilibus erectis dense foliosis, foliis parvis ($\frac{1}{3}$–$\frac{1}{2}$ poll. longis) sessilibus patulis ellipticis subacutis integerrimis carinatis saturate viridibus nitidis, floribus in spicas breves subsessiles paniculatas subpuberulas ad apices ramulorum confertas dispositis oppositis albis, bracteis ovatis calycem æquantibus, calycis oblongi fere 4-partiti lobis lineari-oblongis obtusis ciliolatis, corollæ tubo gracili calyce duplo longiore, lobis 3 posticis ovato-oblongis obtusis, antico anguste lineari, filamentis elongatis, antheris oblongis cæruleis, ovario glaberrimo.

V. anomala, *Armstrong in Trans. N. Zeald. Institt.* vol. iv. (1872) p. 291.

Veronica anomala is one of the most attractive of the New Zealand shrubby Speedwells, owing to its graceful habit, its deep green polished leaves, and copious inflorescence. It was named *anomala* in reference to the peculiarity of the corolla, which is described by its author as having three nearly equal lobes, or two unequal ones, the longer forked at the tip. This reduction of the lobes to three, which I have never found to be the case in any specimen cultivated in this country, was no doubt due (in Mr. Armstrong's native plant) to the entire suppression of the anticous lobe, which, as shown in the accompanying drawing, and in all the plants I have seen under cultivation in England, is reduced to a linear blade very much narrower than the other three. *P. anomala* is a native of the New Zealand Alps, it was discovered by Mr. Armstrong in the valley of the Rakaia river, in the Ashburton Province of the South Island, at an elevation of 4000 ft.; and it has been since found in the Broken River Valley by Mr. Kirk, F.L.S., and at the sea level in the extreme south, namely, Paterson's inlet, Stewart's Island, by the same botanist. It flowered at Kew in 1886, and since then in the Botanical Gardens of Cambridge and Edinburgh, and in my own near Sunningdale. It is perfectly hardy.

June 1st, 1894.

Descr.—A slender shrub, three to four feet high, erect, with erect fastigiate densely leafy purplish branches and branchlets; branches slender, and leaves perfectly glabrous. *Leaves* one-third to one inch long, subsessile, spreading, elliptic, subacute, quite entire, coriaceous, keeled, deep green, and shining above, pale beneath, midrib obscure. *Flower* white, in very short sessile spikes that are crowded together, forming short terminal panicles at the ends of the branches, opposite, quite sessile; bracts as long as the calyx, ovate, most minutely puberulous. *Calyx* $\frac{1}{6}$ in. long, oblong, cylindric, base rounded; segments linear-oblong, obtuse, erect, margins ciliolate. *Corolla-tube* twice as long as the calyx; lobes 4 (rarely 3) spreading; three dorsal, oblong, obtuse, the anticous very narrowly linear. *Filaments* long. *Anthers* oblong, blue. *Ovary* quite glabrous. —*J. D. H.*

Fig. 1, Portion of spike with bracts and flowers; 2, calyx and style; 3 and 4, anthers; 5, ovary and disk; 6, fruiting branchlet; 7, fruit with calyx:— ***All*** **but f. 6** ***enlarged.***

M. S del J.N.Fitch lith.

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Tab. 7361.

RHODODENDRON IRRORATUM.

Native of China.

Nat. Ord. Ericaceæ.—Tribe Rhodoreæ.

Genus Rhododendron, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. ii. p. 599.)

Rhododendron (Eurhododendron) *irroratum*; frutex ramosus, ramulis crassiusculis, ultimis puberulis, foliis breviter petiolatis oblongis lanceolatisve mucronatis basi cuneatis glaucis glaberrimis rigidis nervis utrinque costæ 12–15, floribus laxe glomeratis, pedicellis glandulosis, calyce minimo cupulari dense glanduloso lobis obscuris rotundatis, corolla campanulata alba extus glabra intus basin versus puberula, lobis 5-rotundatis, staminibus 10 inclusis, filamentis inferne brevissime ciliatis, ovario glandulis minutis fuscis obtecto, stylo gracili ad apicem usque glanduloso.

R. irroratum, *Franchet in Bull. Soc. Bot. France*, vol. xxxiv. (1887) p. 280. *Hemsl. in Journ. Linn. Soc.* vol. xxvi. (1889) p. 26.

Rhododendron irroratum, belongs to that group of the genus which includes most of the American species, together with the European *R. ponticum*, and the Himalayan *H. arboreum*, and which is characterized by the large shrubby habit, terminal inflorescence, small calyx, and campanulate 5-lobed corolla. In habit and foliage it resembles *R. ponticum* a good deal, differing in the long corolla-tube, and cupular calyx. It was discovered in woods at Peetsaolo, near Lankong, in the mountainous district of Yunnan, at an elevation of about 8000 ft. by the Abbé Delavay, who sent seeds to the Jardin des Plantes. Of the seedlings there raised one was sent to the Royal Gardens, Kew, in 1890, which flowered in a small greenhouse in September, 1893, when only a foot high, and unbranched. It is certainly in its present condition the least ornamental species of the genus known to me; it is to be hoped that it may prove more attractive as it grows older, or afford better coloured varieties. The flowers are described by Franchet as white, but those of our plant have the corolla-lobes suffused with rose, and faint spots of the same colour occur within the tube.

June 1st, 1894.

Descr.—A glabrous shrub several feet high, with robust stems, branches, and branchlets, the youngest shoots minutely puberulous. *Leaves* spreading and deflexed, three to four inches long, oblong, oblong-lanceolate, or oblanceolate, obtuse, apiculate, base acute or cuneate, margins recurved; nerves 12 to 15 pairs, very slender; upper surface convex, bright green, under pale green, with very slender nerves and reticulating nervules; petiole very short. *Flowers* many, in terminal heads, very shortly pedicelled; bracts $\frac{1}{2}$ to $\frac{3}{4}$ inch long, oblong, concave, yellow brown, tips ciliate. *Pedicel* very glandular. *Calyx* cupular, glandular, obscurely 5-lobed, the lobes ciliate. *Corolla* one and a half inch long, rather narrowly campanulate, tube white, with 5 furrows and as many gibbosities at the retuse base; lobes 5, short, rounded, spreading and recurved, suffused with rose. *Stamens* 10, filaments glabrous, anthers shortly oblong. *Ovary* conical, ten-furrowed and ten-celled, minutely glandular; style strict, sparsely glandular from the base to the tip, stigma small. —*J. D. H.*

Fig. 1, Calyx and pistil; 2 and 3, stamens; 4, transverse section of ovary :— *All enlarged.*

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Tab. 7362.

HOULLETIA Landsbergi.

Native of Costa Rica.

Nat. Ord. Orchideæ.—Tribe Vandeæ.

Genus Houlletia, *Brongn.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 550.)

Houlletia *Landsbergi*; pseudobulbis ovoideis obtuse angulatis, folio ovato-lanceolato acuto in petiolum angustato ad 9-nervi, scapo crasso decurvo 3-vaginato paucifloro, floribus amplis 3 poll. latis rubro-aurantiacis maculis saturatioribus creberrime ornatis, sepalis obtusis lateralibus ovato-oblongis, dorsali elliptico, petalis saturatius coloratis subtriangulari-ovatis basi angustatis margine interiore medio late emarginato et in cornu producto, labelli albi purpureo adspersi hypochilo sublineari carnoso basi concavo subbilobo, medio utrinque in cornu elongatum erectum dein incurvum album producto, epichilo hypochilo breviore late hastato-ovoideo apice rotundato angulis posticis in cornua patentia alba productis.

H. Landsbergi, *Linden & Reich. f. in Regel Gartenfl.* (1855) 2, *cum Ic.*

Though published and figured so long ago as 1855, *Houlletia Landsbergi* is a very little known plant, and has been erroneously supposed to be a native of Brazil. The genus to which it belongs is a small one, numbering only eight published species, and is closely allied to *Stanhopea*, differing technically chiefly in the very narrow stalk of the pollinia, but very much otherwise in form of flower. Two other species are figured in this work, both with longer more terete petioles and erect racemes, *H. Brocklehurstiana*, Lindl. t. 4072, with the upper half of each sepal and petal dark red, and a blue epichile; and *H. picta*, Lindl. and Reich. f., t. 6305, with the corresponding parts of the sepals and petals chestnut-brown, and the epichile yellow mottled with almost black brown. The specimen of *H. Landsbergi* here figured differs somewhat from the figure in the Gartenflora, which has much paler sepals and petals, the epichile of the lip is white with a yellow tip and a few minute purple spots, the petals are much smaller, more obovate-oblong, with a shallow notch in the inner margin, which is not produced into a horn.

H. Landsbergi was obtained by the Royal Gardens, Kew, in the summer of 1891, from Mr. Richard Pfau, of the

Central American Nurseries, San Jose, Costa Rica. It flowered in an "intermediate" house in September, 1893.

Descr.—*Pseudobulbs* an inch long, ovoid, obtusely angled, dark green. *Leaf* nearly a foot long, by four inches broad, elliptic-ovate, acute, about 9-nerved, narrowed into a ribbed petiole, pale green. *Peduncle* about four inches long, stout, strongly decurved, lower part dark red brown, upper violet; spathes three at the flexure, short, obtuse; bracts half as long as the ovary, oblong, inflated. *Flowers* three inches across the petals, longer from the tip of the dorsal sepal to that of the epichile. *Sepals* reddish-orange, densely tesselate with rounded red-brown spots, obtuse, dorsal elliptic, lateral ovate-oblong. *Petals* darker coloured than the sepals, triangular-ovate, with a broad excised notch in the inner margin, and there produced into an acute horn. *Lip* with a white, narrow, fleshy hypochile, barred towards the base with blood-red, and having on each side, about the middle, a long erect incurved horn; epichile not half the length of the hypochile, broadly hastately ovate, white mottled with violet purple; tip rounded, posterior angles produced into large white erect incurved horns. *Column* golden-yellow, sprinkled with red.—*J. D. H.*

Figs. 1 and 2, front and side views of column; 3 and 4, anther; 5 and 6, pollina:—*All enlarged.*

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Tab. 7363.

GASTROCHILUS Curtisii.

Native of Malay Peninsula.

Nat. Ord. Scitamineæ.—Tribe Zingibereæ.

Genus Gastrochilus, *Wall.*; (*Benth. et Hook. f. Gen. Pl.* vol. iii. p. 642.)

Gastrochilus *Curtisii*; acaulis, foliis 3–4 oblongis acutis dorso pubescentibus, petiolo canaliculato demum alato, floribus 3–4 centralibus sessilibus, bracteis pallidis scariosis convolutis, calycis tubo cylindrico dentibus lanceolatis erectis, corollæ tubo cylindrico apice ampliato calyce duplo longiori lobis porrectis oblongo-lanceolatis albis, staminodiis superioribus oblongo-lanceolatis, labello oblongo apice et marginibus rubellis decurvatis, genitalibus e tubo breviter exsertis.

This new species of *Gastrochilus* is nearly allied to *G. longiflora*, Wall. (*Bot. Mag.* t. 4010), but the flowers are smaller and the labellum is very different. It closely resembles the well-known *Kæmpferia pandurata*, Roxb. (*Bot. Reg.* tab. 173), and requires similar treatment. *Gastrochilus* is only distinguished from *Kæmpferia* by the want of a crest to the anther, and I think it would be better regarded as a subgenus, now that the difference of habit has been so completely broken down by new discoveries. The present plant is a native of the forests of Penang, where it was discovered by Mr. Chas. Curtis, Assistant Superintendent of the Garden and Forests Department, Straits Settlements. It was sent by him to the Royal Gardens, Kew, in 1893, and flowered freely in a warm conservatory last summer.

Descr.—Acaulescent. *Rootstock* fleshy. Produced *leaves* about four to a tuft, petiole four to six inches long, deeply channelled down the face, winged on the edges in the lower half; blade oblong, acute, bright green, a foot long, five or six inches broad at the middle, pubescent on the back. *Flowers* white, contemporary with the leaves, sessile, central; bracts white, scariose, convolute, as long as the calyx. *Calyx* white, scariose; tube cylindrical; teeth lanceolate, erect, *Corolla-tube* two inches long, rather dilated at the top; lobes standing forward, oblong-

lanceolate, an inch long. *Upper staminodes* about as long as the corolla-lobes; labellum rather longer, oblong, with a deflexed tip and deflexed reddish edges; fertile stamen and style but little protruded from the corolla-tube.—*J. G. Baker.*

Figs. 1 and 2, bracts; 3, a complete flower, *both life size*; 4 and 5, fertile stamen and style; 6, section of filament; 7, ovary; 8, section of ovary; 9, ovule:—*All enlarged.*

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Tab. 7364.

COLOCASIA antiquorum.

Native of India.

Nat. Ord. Aroideæ.—Tribe Colocasieæ.

Genus Colocasia, *Schott*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 974.)

Colocasia *antiquorum*; caulebasi tuberoso stolones elongatos tuberiferos emittente, foliis erectis amplis longe petiolatis peltatis ovato-cordatis sinu rotundato v. triangulari, lobo antico latitudine paullo longiore acuto, posticis antico duplo brevioribus obtusis, nervis lateralibus utrinque 4–7, pedunculis pluribus petiolo brevoribus, spathæ tubo oblongo viridi lamina lineari-lanceolata flavida 3–5-plo breviore, inflorescentia fœminea sterili æquilonga, mascula fertili duplo longiore, appendice brevi.

C. antiquorum, *Schott Meletem.* vol. i. p. 18; *Syn. Aroid.* p. 40; *Prodr.* p. 48. *Kunth Enum. Pl.* vol. iii. p. 372. *Engler Monogr. Arac.* p. 491. *Benth. Fl. Austral.* vol. vii. p. 155. *Hook. f. Fl. Brit. Ind.* vol. vi. p. 523.

C. esculenta and C. acris, *Schott Meletem.* p. 18. *Kunth l. c.*

C. himalensis, *Royle Ill. Bot. Himal.* 407 (nomen). *Gard. Chron.* 1893, vol. ii. p. 372.

C. nymphæifolia, *Kunth l. c.*

C. Fontanesii, *Schott in Œstr. Bot. Wochenbl.* iv. (1854). p. 409.

C. pruinipes, *Koch & Bouché Ind. Sem. Hort. Berol.* (1854), *App.* p. 4.

C. euchlora, *C. Koch & Lind. l. c. App.*

Caladium esculentum, *Vent. Hort. Cels. sub* t. 30. *Willd. Sp. Pl.* vol. iv. p. 489.

C. colocasioides, *Brongn. in Nouv. Ann. Mus. Paris*, vol. iii. p. 156. *Kunth l. c.*

C. acre, *Br. Prodr. Fl. Nov. Holl.* p. 336.

C. nymphæifolium, *Vent. l. c. Griff. Notul. Pl. Asiat.* vol. iii. p. 144; *Icon.* t. 161, B, f. 2.

C. violaceum, *Hort. ex Engl. in DC. Monog. Phan.* vol. ii. p. 492.

C. aquatile and C. vicorum, *Rumph. Amboin.* vol. v. t. 110, f. 1, and p. 318.

Alocasia Dussii, *Hort. Dammann.*

A. illustris, *Bull. Cat.* (1873), p. 4. *Floral Mag.* (1874), p. 107 (folium).

Arum Colocasia, *Linn. Sp. Pl.* p. 965. *Roxb. Fl. Ind.* vol. iii. p. 494. *Wight. Ic. Plant. Ind. Or.* t. 786, f. 1. *Catesby Hist. Carolina*, vol. ii. t. 45.

A. esculentum, *Linn. l. c. Sloane Hist. Jamaica*, vol. i. t. 106. *Forst. Prodr. Fl. Ind. Austr.* n. 328 & *Pl. Escul.* p. 27.

A. nymphæifolium, *Roxb. l. c.* 495. *Wight. l. c. f.* 2.

A. peltatum, *Lam. Encycl.* vol. iii. p. 13.

A. colocasioides, *Desfont. Cat. Hort. Paris*, Ed. 3. vol. vii. p. 7 & 385.

A. ægypticum, *Rumph. Amboin.* vol. v. t. 109, 110, f. i.

Weli-ila & Sar Kuchoo, *Rheede Hort. Malab.* vol. xi. t. 22.

It is singular that, in so far as I can ascertain, there is no good figure of this, one of the most widely cultivated

tropical esculent plants to be found in any modern work that has appeared in the British Isles; nor indeed in the British Empire, except in Wight's *Icones*, published in the Madras Presidency more than fifty years ago. There are several rude representations of it in works of last century, as that in Rheede's "Hortus Malabaricus," dating 1703, when Malabar was under Dutch rule; in Sloane's "History of Jamaica" (1725); in Catesby's "History of Carolina" (1743), and in Rumphius Herbarium Amboinense, 1747.

Colocasia antiquorum is best known to English-speaking people as the "Kuchoo" of India, the "Tarro" or "Taro" of the Pacific Islands, "Kandalla" of Ceylon, and "Eddoes" of tropical Africa. It is unquestionably a native of India, as is vouched by its Sanscrit name (Kuchoo) as given by Roxburgh, who states that two varieties are cultivated in the neighbourhood of Calcutta, and that three wild forms are found in most parts of India. These varieties are (1) the "Kala (dark) Kuchoo" (*Caladium aquatile*, Rumph., of which the roots never swell, but the leaves and footstalks are eaten by Bengalis. It frequents wet places. (2) "Char Kuchoo" grows in dry ground, dunghills, &c., with dark purple or bluish-black clouds in the disk of the leaf. This is probably the *Alocasia illustris* cited above; and (3) the "Bun Kuchoo" (*Caladium vicorum*, Rumph.) grows like the last in dry ground, but has uniformly green leaves, and like it is rarely eaten. Besides these there is the "Sar Kuchoo" (*Caladium nymphæifolium*, Roxb.—*Rheede*, vol. xi. t. 22), which Roxburgh distinguishes as a distinct species, from its larger size, the roots often growing to the thickness of a man's arm, the peduncle, petioles and leaves of a reddish colour, the leaves narrower in proportion, and the short appendix of the spadix. No doubt it is a large aquatic variety of *C. antiquorum*, and is so regarded by most Indian botanists. It is rarely cultivated in Bengal, but abounds wild in watery places; every part of it is eaten by the Hindoos.

According to de Candolle ("Origine des Plantes Cultivées," p. 59) the *Colocasia* was first known in Europe through its having been cultivated in Egypt, though probably comparatively recently, as it does not appear on any

of the monuments of that country. Pliny mentions it as *Arum Ægypticum*. Prosper Alpinus ("Hist. Ægypt. Naturel"), who saw it in cultivation in Egypt in the 16th century, says that its name there is the Arabic one of *Culcas*, in which De Candolle recognizes an analogy with the Sanscrit one, *Koutschoir*; which he thinks renders it probable that it was introduced into Egypt from India or Ceylon. Clusius mentions it as cultivated in Portugal, under the name of *Alcoleaz*, and as having been introduced from Africa. In Italy it is naturalized and called *Aro di Egitto*. Finally, the name *Colocasia* was, according to De Candolle, a Greek one, and applied to the *Nelumbium*, under which Dioscorides speaks of it; adding that it was transferred to this Aroid by modern writers.

The part of *C. antiquorum* chiefly used is the tuberous base of the stem, which is long and white, weighing from a quarter of a pound to eighty pounds; but all parts are utilized, after being well boiled to separate the acrid matter common to most Aroids. Its area of cultivation extends from S. Europe, where it is infrequent, all over tropical Africa and Asia, to Japan, Australia, the hotter parts of New Zealand, and Polynesia. In the Himalaya it forms an important article of food, and is productive up to 7500 ft. elevation.

Tubers of the specimen here figured were received at the Royal Gardens from Messrs. Dammann and Co., Nurserymen, of Naples, in the spring of 1893, under the name of *Alocasia Dussii*; they flowered in the Aroid House (No. 1) in May, 1893.—*J. D. H.*

Fig. 1, Spadix of the *natural size*; 2, stamens; 3, ovary; 4, vertical, and 5, transverse section of the same; 6, ovules:—*All enlarged*; 7, *reduced* view of whole plant.

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Tab. 7365.

ÆSCHYNANTHUS Hildebrandii.

Native of Burma.

Nat. Ord. Gesneraceæ.—Tribe Cyrtandreæ.

Genus Æschynanthus, *Jack.*; (*Benth. & Hook. f. Gen. Pl.* vol. ii. p. 1013).

Æschynanthus (Haplotrichium) *Hildebrandii*; humilis, cæspitosus, ramulis e caule repente ramoso ascendentibus foliosis puberulis, foliis pollicaribus breviter petiolatis oppositis supremis confertis carnosis ovatis v. obovato-oblongis obtusis marginibus ciliolatis et remote glanduloso-punctatis utrinque hirtulis subtus albescentibus, pedunculis in axillis supremis brevibus, calycis segmentis subæqualibus corolla multoties brevioribus ovato-lanceolatis acutis, corollæ pollicaris aureo-coccineæ glanduloso-pubescentis tubo lente curvo compresso superne inflato bilabiato basi intus papilloso, labio superiore galeato breviter obtuse 3-lobo, inferiore lineari obtuso, filamentis longe exsertis styloque glanduloso-pubescentibus, disco cylindrico, ovario glaberrimo.

Æ. Hildebrandii, *Hemsl. in Herb. Kew.*

A very distinct species of a genus that is abundant in the moister forest-clad districts of British India, in the eastern provinces especially, extending from the Central Himalaya to Burma, and southwards to Ceylon and Singapore. About twenty-five Indian species are known, a number which will no doubt be considerably increased when the eastern province of Burma shall have been explored botanically. *Æ. Hildebrandii* belongs to the section *Haplotrichium*, in which the seeds have one long hair at each extremity. Specifically it is nearest to *Æ. gracilis*, Parish (a hirsute, pendulous, widely distributed species, from Sikkim to Burma), in the form of the corolla, but it differs totally in habit, and in the absence of long hairs on the stem, leaves, and flowers, which are replaced by a short glandular-pubescence.

Æ. Hildebrandii is a native of Burma, whence living plants were sent to the Royal Gardens by H. H. Hildebrand, Esq., who found the plant near Fort Stedman.

Descr.—A dwarf, leafy species. *Stems* loosely tufted, creeping, subterrestrial, about as thick as a crowquill, and

covered with black-brown bark; branches suberect, two to four inches high, green, puberulous, leafy. *Leaves* rather crowded, opposite and alternate, about an inch long, rather fleshy, ovate, subacute, narrowed into a very short petiole, minutely hairy on both surfaces, bright green above, silvery beneath; margins reddish, ciliolate, and bearing distant minute circular glands. *Flowers* few, from the upper leaf axils; peduncles shorter than the leaves, and as well as the calyx and corolla, filaments, and style, glandular-hairy. *Calyx* very small, 4-partite, segments ovate-lanceolate. *Corolla* about an inch long, orange-scarlet, laterally compressed, curved; tube narrow for half its length, then dilated into a hooded deeply 2-lipped limb; upper lip 4-toothed, teeth rounded, lateral largest, and margins recurved, intermediate connate below; lower lip linear, obtuse, recurved. *Stamens* exserted for nearly half their length, filaments purple; anthers oblong, glabrous; staminode minute. *Disk* cylindric, glabrous, mouth crenulate. *Ovary* narrow, quite glabrous; style exserted, as long as the stamens, stigma minute. *Capsule* 2½ in. long, very slender. *Seeds* with the hairs half an inch long.—*J. D. H.*

Fig. 1, Portion of margin of leaf; 2, segments of calyx, disk and ovary; 3, corolla laid open and stamens; 4 and 5, anthers:—*All enlarged.*

M.S del. J.N Fitch lith.

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Tab. 7366.

SPATHOGLOTTIS GRACILIS.

Native of Borneo.

Nat. Ord. Orchideæ.—Tribe Dendrobieæ.

Genus Spathoglottis, *Blume*; (*Benth. et Hook. f. Gen. Plant.* vol. iii. p. 571.)

Spathoglottis gracilis; elata, pseudobulbis vestigiis foliorum vestitis, foliis 2–3-pedalibus lineari-lanceolatis, scapo gracili apice florifero, bracteis cymbiformibus obtusis herbaceis, floribus amplis, sepalis petalisque consimilibus late oblongis obtusis utrinque aureis dorso rubro striatis, labello sepalis multo minore, lobis lateralibus erectis incurvis subspathulato-oblongis apice rotundato-truncatis intus sanguineo aspersis, lobo intermedio angusto basin versus auriculis 2 triangularibus pilosis deflexis instructo apice dilatato obcordato.

S. gracilis, *Rolfe in Herb. Kew.*

Spathoglottis gracilis belongs to a small group of species, of which the type, if the first described member of it may be so considered, is the Malayan (Mount Ophir) *S. aurea*, Lindl. (in *Paxt. Fl. Garden.* vol. i. p. 16, and *Journ. Hort. Soc.* vol. v. p. 34). The other members of the group are three, *S. Kimballiana*, *Hort. Sander*, and *S. Wrayi* (*Fl. Brit. Ind.* vol. v. p. 813, and *Hook. Ic. Pl.* t. 2086). Of these *S. aurea* has the middle of the lip very narrow, moderately dilated at the tip, and ending in a narrow or dilated acute point, and the side lobes are long and narrow; it inhabits Borneo and the Philippine Islds., as well as Mount Ophir. *S. Kimballiana* is a larger plant than *gracilis*, with larger flowers; the sepals are pale brown dorsally, and the midlobe of the lip is much broader and obovate-spathulate; it is well figured in the *Gardener's Chronicle* for 1888, vol. ii. p. 93, fig. 9 (repeated in "Veitch's Manual of Orchids," pt. vi. p. 6), and described by Reichenbach as a variety of *aurea*. Lastly, *S. Wrayi*, a native of Perak, in the Malayan Peninsula, has the large flowers of *S. Kimballiana*, short side lobes of the lip, its auricles at the base of the side lobes are glabrous, and the middle of the lip is narrowly spathulate. Considering the characters of the above three plants, it may well be

doubted whether they are not varieties of one; and all the more from the fact of *S. gracile* and *Kimballiana* having been received from Borneo in the same clump by Messrs. Sander. To decide this point a comparison of living specimens of all from various localities is wanted, and the amount of dilatation of the midlobe and side lobes of the lip must be studied; meanwhile I have provisionally adopted Mr. Rolfe's conviction that they will prove very distinct species, and I have adopted his name for that here figured.

I am indebted to Messrs. Sander for flowers of both *gracilis* and *Kimballiana*, which they received from Borneo through their collector, Mr. Forstermann. The figure of the former species was from a specimen which they communicated to the Royal Gardens, and which flowered there in February last.

Descr.—*Stem* a pseudobulb, as thick as the thumb, clothed with the remains of old leaf-sheaths, and sending out roots thicker than a duck's quill. *Leaves* 2–3 ft. long, lanceolate, acuminate, plaited, narrowed into a rigid elongate petiole. *Peduncle* as long as the leaves, or longer, stout, erect, with a few cymbiform obtuse sheaths; raceme short; bracts boat-shaped, green, coriaceous, tip rounded; flowers few, two and a half in. diam., bright yellow. *Sepals* broadly oblong, tip rounded, dorsally keeled and streaked with red. *Petals* rather larger, obovate-oblong. *Lip* shorter than the sepals, 3-lobed, hairy towards the base; lateral lobes incurved, obliquely spathulate-oblong, spotted with red below the middle, tip truncate or rounded; disk with two erect dimidiate-ovate, and two small conical decurved auricles; midlobe very narrow, fleshy, with a short conical auricle at the base on each side, and a dilated broadly obcordate tip.—*J. D. H.*

Fig. 1, Lip with one side lobe removed; 2, column; 3, anther; 4, pollinia:—*All enlarged.*

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LEPTACTINA Mannii.

Native of Tropical West Africa.

Nat. Ord. Rubiaceæ.—Tribe Gardenieæ.

Genus Leptactina, *Hook.* f.; (*Benth. et Hook. f. Gen. Plant.* vol. ii. p. 85.)

Leptactina, *Mannii*; frutex 12-pedalis, ramosus, fere glaberrimus, ramulis crassis, foliis 5–8 poll. longis oblongis obovato-oblongisve obtusis basi in petiolum brevem alatum angustatis, nervis utrinque ad 9 patentibus, stipulis amplis ramo latioribus oblongo-rotundatis recurvis quasi inflatis persistentibus, floribus magnis in fasciculos terminales inter folia summa congestis sessilibus, calycis tubo brevi puberulo 10-costato, lobis amplis erectis lineari-oblongis obtusis herbaceis ciliolatis, corollæ tubo 4-pollicari angusto tereti, fauce vix dilatato intus sericeo, lobis 5 $2\frac{1}{3}$-pollicaribus anguste lanceolatis apice obtusis patenti-recurvis albis, stylo superne hirsuto, ramis cylindraceis.

L. Mannii, *Hook. f. in Hook. Ic. Pl.* vol. vi. (1871), p. 73, tab. 1092. *Hiern, in Oliv. Fl. Trop. Afr.* vol. iii. p. 88.

The genus *Leptactina* was established by myself when preparing the *Rubiaceæ* for the "Genera Plantarum," upon four tropical West African plants, and was published in the "Icones Plantarum" cited above. To these two other species have been added, also from tropical Africa, namely *L. heinsioides*, Hiern, (in Oliver, Fl. Trop. Africa, vol. iii. p. 88), and *L. tetraloba*, N.E. Br. in *Gard. Chron.* (1885), vol. ii. p. 391. The genus is a near ally of *Gardenia* and *Randia*, differing from both in the terminal inflorescence, and from the first named in the 2-celled ovary and foliaceous calyxlobes.

Leptactina Mannii was discovered by Gustav Mann, Esq. (late Inspector of Forests in Assam), when on a misson under the Royal Gardens, Kew, to investigate the timber resources of Western tropical Africa in 1862. He found it on the banks of the Kongue or Gaboon river, in lat. 1° N. The specimen figured is that of a plant sent to the Royal Gardens, Kew, from the Jardin des Plantes in December, 1893, by Prof. Maxim Cornu, which flowered

in a stove in September of the following year, when about four feet high.

Descr.—A branching shrub, about 6 ft. high, with stout glabrous branches, and green, terete branchlets, as thick as a swan's-quill. *Leaves* 5–8 inches long, the uppermost part as large as the lower, oblong, or obovate-oblong, obtuse, narrowed into a short, broad petiole, dark green above, with about nine nerves on each side of the midrib, paler beneath. *Stipules* large, broader than the branch, very broadly obovate, convex, and being reflexed from below the middle appear as green globose bodies between the insertions of the leaves. *Flowers* crowded in clusters between the uppermost pairs of leaves, sessile. *Calyx* tube $\frac{1}{4}$ of an inch long, obconical, deeply 10-grooved, with rounded ribs, puberulous, green; segments 1–$1\frac{1}{4}$ in. long, linear-oblong, obtuse, erect, bright green, indistinctly nerved, margins ciliolate. *Disk* tumid, girt with a ring of conical glands. *Corolla* white; tube four inches long, slender, terete, throat hardly dilated, silky within; lobes five and a half inches long, elongate-lanceolate, with obtuse tips, spreading and recurved. *Anthers* linear, sessile in the throat of the corolla, dorsally inserted, connective shortly produced, obtuse. *Style* very long, hirsute in the upper part within the throat; stigmatic arm cylindric, hairy. *Ovary* 2-celled, cells many-ovuled. —*J. D. H.*

Fig. 1, Calyx with two sepals removed, showing the disk and ring of epigynous glands; 2, throat of corolla with bases of lobes laid open showing the stamens; 3, upper part of style and stigmatic arms; 4, transverse section of ovary:—*All enlarged.*

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Tab. 7368.

NEUWIEDIA Lindleyi.

Native of the Malayan Peninsula.

Nat. Ord. Orchideæ.—Tribe Apostasieæ.

Genus Neuwiedia, *Blume*; (*Benth. & Hook. f. Gen. Pl.* vol. iii. p. 635).

Neuwiedia *Lindleyi*; elata, foliis lineari-lanceolatis oblanceolatisve acuminatis, scapo 2–3-pedali, racemo elongato puberulo dense multifloro, bracteis lineari-lanceolatis flores subæquantibus membranaceis erectis et recurvis.

N. Lindleyi, *Rolfe in Journ. Linn. Soc.* vol. xxv. p. 232, 241, t. 48, f. 10–12.
Hook. f. Fl. Brit. Ind. vol. vi. p. 175.

The singular Malayan genus *Neuwiedia* is here for the first time figured from a living specimen. It was founded by Blume in 1834 on a Javan plant (*N. veratrifolia*) of which only two specimens were seen, a flowering and a fruiting, and of which the descriptions (his own, and a later by Reichenbach) are very incomplete, and are insufficient to distinguish it from some later described species. The genus comprises five more or less imperfectly distinguished species, namely *N. Zollingeri* of Java and *N. Griffithii* of Malacca, both of Reichenbach, *N. calanthoides*, Ridley, from New Guinea, *N. Curtisii*, Rolfe, of Penang and Sumatra, and the subject of the accompanying plate. The tribe to which it belongs, *Apostasieæ*, has been the subject of an elaborate memoir by Mr. Rolfe, in the Journal of the Linnæan Society, cited above. In it Mr. Rolfe rightly separates the *Apostasieæ* from *Cypripedieæ*, with which they are united in the "Genera Plantarum," and the above enumerated species are all described.

N. Lindleyi was received at the Royal Gardens, Kew, in July, 1887, from Mr. Ridley, F.L.S., Superintendent of the Singapore Gardens, and (as Mr. Watson informs me) developed its flowers very slowly in midwinter, 1893–4.

August 1st, 1894.

N. Griffithii is also in cultivation at Kew, and will, I hope, appear in this work in due course, when it flowers.

Descr.—A tall, stout, erect herb, 3–4 feet high. *Stem* as thick as the thumb at the base, emitting very stout cylindric roots. *Leaves* numerous towards the base of the stem, 12–16 in. long, and 2 inches broad, narrowly lanceolate, acuminate, plicate. *Scape* about a foot high, terete, green, loosely clothed with narrowly lanceolate acuminate membranous green bracts tipped with brown, the lower 3 inches long, the upper passing into floral bracts. *Raceme* 6–12 inches long, dense-flowered; bracts like the cauline, but smaller, rather shorter than the flowers, and as well as these puberulous. *Flowers* very shortly pedicelled; ovary oblong, obtusely trigonous, shortly stoutly beaked; perianth an inch long, decurved, subcylindric, golden yellow. *Sepals* linear-oblong, concave, tip rounded and mucronate. *Petals* rather broader than the sepals, dorsally keeled, keel rounded and exserted from the rounded tip of the petal as a green mucro like that of the sepals. *Lip* like the petals, mucronate below the concave tip, and with a thick rounded, fleshy callus, which occupies nearly all its inner surface from the base to the apex. *Filaments* 3, subequal, stout, united for more than half their length with the style in a terete column. *Anthers* large, subequal, linear-oblong. *Style* rather shorter than the stamens; stigma globose, 3-lobed. *Ovary* 3-celled.—*J. D. H.*

Fig. 1, Flower; 2, lip; 3 and 4, front and back views of column; 5, top of style and stigma:—*All enlarged.*

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Tab. 7369.

DERMATOBOTRYS Saundersii.

Native of Natal and Zululand.

Nat. Ord. Scrophularineæ.—Tribe Cheloneæ?

Genus Dermatobotrys, *Bolus in Hook. Ic. Plant.* t 1940.

Dermatobotrys *Saundersii;* fruticulus glaber, ramis crassiusculis subtetragonis, foliis ad apices ramulorum paucis oppositis subsessilibus ovatis acutis repando-dentatis carnosulis, floribus infra folia subverticillatim dispositis breviter pedicellatis, bractea parva, calyce parvo 5-partito segmentis linearibus, corolla tubulosa bipollicari a basi angusta sursum sensim dilatata, fauce aperta, tubo basi intus piloso, lobis 5 parvis patentibus ovatis, antheris 5 ore tubi subsessilibus ellipticis, disco inconspicuo, ovario 2-loculari multiovulato, ovulis placentis septo affixis confertis, stylo filiformi, stigmate simplici, bacca ovoidea, seminibus numerosis placentis septo adnatis immersis, testa serobiculata, embryone in albumine corneo recto.

D. Saundersii, *Bolus, l.c. Kuth. Saunders in Kew Bulletin,* 1893, p. 367.

Dermatobotrys is a very singular monotypic genus, as to which, though its floral and seminal characters have been clearly made out, the position in the natural system of plants is not quite definitely established. Mr. Bolus, its author, referred it with little hesitation to *Solanaceæ*; and both in habit and certain characters, as the regular quinquefid corolla, with five equal stamens at its mouth, it recalls the tribe *Cestrineæ* of that Order, whilst it resembles no known Scrophularineous plant. On the other hand, in a note appended to M. Bolus's description, Professor Oliver cites the more or less quadrangular stem, bilabiate æstivation of the corolla and straight embryo as characters foreign to *Solanaceæ*, and in favour of *Scrophularineæ*. Under this view Professor Oliver refers *Dermatobotrys* doubtfully to the tribe *Cheloneæ* of the latter order; where its position would be near to the Cape genus *Phygelius* (see tab. 4881) which has scarlet flowers, a long incurved corolla tube with 5 subequal lobes, but which differs in having 4 didynamous stamens, capsular fruit, and other discrepant characters.

Dermatobotrys was first collected, but in a fruiting

state only in Natal, by the collector Gerrard, about twenty years ago, and more lately by Mr. J. Medley Wood, the energetic Curator of the Natal Botanical Gardens, who describes it as having a tendency to fix itself on dead trees. Mr. Bolus's description and figures are from fresh specimens and a drawing sent to him by Mrs. Katherine Saunders from Eshowe in Zululand. To this latter invaluable correspondent the Royal Gardens of Kew are indebted for seeds, from which a large number of plants were raised in 1892, and which flowered in December, 1893; as also for living plants, with the observation that the shrub is epiphytic, growing normally on trees, though also on the ground. Mr. Watson informs me that at Kew the leaves are deciduous in autumn, the plant starting into new growth, and flowering in winter.

Descr.—An epiphytic small shrub, with a long naked stem as thick as the wrist in old plants, and stout, subquadrangular naked brown branches, bearing short, terminal leafy shoots. *Leaves* 2–6 in. long, rather fleshy, ovate or oblong, subacute, coarsely toothed, base narrowed into a short petiole, young, and often the nerves and margins of the old red. *Flowers* in clusters below the leaves; pedicels very short, spreading, and puberulous. *Flowers* 2 inches long, drooping. *Calyx* very small, 5-partite, persistent, puberulous, green; segments linear, puberulous. *Corolla* tubular, trumpet-shaped, pale red, tube gradually dilated from a slender base to the naked throat, hairy at the base within; lobes 5, short, ovate, spreading, yellow within. *Anthers* 5, sessile at the mouth of the corolla-tube, broadly oblong. *Ovary* ovoid, confluent with the disk, glabrous, 2-celled; ovules many, on spongy axile placentas; style very slender, stigma simple. *Fruit* an ovoid green, 2-celled, many-seeded, green drupe nearly an inch long, tip rounded, apiculate by the style-base.—*J. D. H.*

Fig. 1. Calyx and style; 2, corolla laid open; 3, ovary and disk; 4, transverse section of ovary:—*All enlarged.*

Tab. 7370.

VERONICA amplexicaulis.

Native of New Zealand.

Nat. Ord. Scrophularineæ.—Tribe Digitaleæ.

Genus Veronica, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. ii. p. 964.)

Veronica (Hebe) *amplexicaulis*; fruticulus erectus, ramis subrobustis cortice atro, foliis decussatim oppositis quadrifariam imbricatis sessilibus coriaceis late oblongis concavis utrinque rotundatis v. basi subcordatis glaucis enerviis et ecarinatis, pedunculis axillaribus foliis longioribus robustis pubescentibus spicas 1 v. 3 breves multi-densifloras gerentibus, floribus oppositis parvis albis, bracteis oblongis obtusis ciliatis calycem æquantibus, sepalis lineari-oblongis obtusis ciliatis, corolla tubo calyce incluso, limbi lobo dorsali erecto ovato-oblongo obtuso, ceteris decurvis lineari oblongis obtusis, filamentis longe exsertis, antheris cœruleis, ovario apice hirtello.

V. amplexicaulis, *Armstrong in Trans. N. Zeald. Institute*, vol. xiii. (1880), p. 352.

The subject of this plate is another of the hardy New Zealand evergreen shrubby Speedwells. Its nearest ally is *V. pinguifolia*, Hook. f., from which it differs in the much larger, broader leaves, which are rounded or subcordate at the base. It appears to be a very local plant, there being no recorded locality for it but the Alps of the Canterbury Province, where it was discovered by its describer, Mr. Armstrong, and from whence dried specimens were sent to Kew in 1887 by Mrs. Hetley. The specimen figured was kindly sent by Dr. Balfour, from the Edinburgh Botanical Gardens in June, 1893, and the capsule in August of the same year. The species has been in cultivation there and at Kew and elsewhere for a good many years, flowering annually in June, and is like its New Zealand dwarf fruiticose allies, perfectly hardy.

Descr.—An erect or decumbent shrub, 1–2 ft. high, branching from the base; branches about as thick as a crow-quill, bark nearly black, branchlets green, puberulous. *Leaves* $\frac{2}{3}$–1 in. long, sessile, quadrifariously imbricate, elliptic-oblong, rounded at both ends, or base cordate, concave, very coriaceous, glaucous, nerveless, and not

keeled, margins quite smooth. *Flowers* about $\frac{1}{4}$ in. diam., sessile, in short, dense-fld. conical, solitary or ternate spikes; peduncle, axillary stout, pubescent, longer than the leaves, simple or forked, bibracteate at the fork, and bearing three spikes. *Bracts* as long as the calyx, coriaceous, oblong, concave, ciliate. *Sepals* linear-oblong, obtuse, ciliate. *Corolla-tube* very short, included in the calyx-tube, spreading, posticous lobe broadest, concave, erect, the other three linear-oblong, obtuse, decurved. *Stamens* exserted, anthers blue. *Ovary* 4-lobed, tops of lobes hispid. *Capsule* rather longer than the sepals, oblong, 4-lobed.—*J. D. H.*

Fig. 1, Portion of spike; 2, calyx; 3, stamen; 4, disk and ovary; 5, capsule: —*All enlarged.*

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Tab. 7371.

DENDROBIUM ATROVIOLACEUM.

Native of New Guinea.

Nat. Ord. Orchideæ.—Tribe Dendrobieæ.

Genus Dendrobium, *Sw.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 498.)

Dendrobium (Stachyobium) *atro-violaceum*; pseudobulbis fusiformibus sessilibus sulcatis demum stipitatis 2-foliis, foliis oblongis obtusis crasse coriaceis supra læte viridibus subtus pallidis nervis 5–7 viridibus percursis, pedunculo multifloro, floribus amplis, sepalis petalisque subtortis marginibus recurvis primulinis purpureo-maculatis, sepalis ovato-lanceolatis subacutis, petalis obovato-oblongis acutis ob margines infra medium revolutas quasi spathulatis, labelli lobis lateralibus amplis auriculæformibus violaceis albo striatis, intermedio cordiformi obtuso recurvo, disco postice violaceo albo striato bilamellato.

D. atro-violaceum, *Rolfe in Gard. Chron.* 1890, vol. i. p. 512.

Of all Dendrobes known to me I cannot recall amongst recent discoveries one so strikingly unlike its congeners in coloration, and at the same time so beautiful in this respect, as *D. atroviolaceum*. As Mr. Rolfe observes in his description of it, cited above, its nearest ally is *D. macrophyllum*, A. Rich. (Tab. 5649) a noble species, with broad leaves, over a foot long, and hairy inflorescence. Technically, both belong to the section *Stachyobium*, of *Dendrobium*, and to the rather heterogeneous subsection of *Speciosa*; but whether or no they may be included in the latter, they with a few other far Eastern species form a small group distinguished by the long clavate stem or pseudobulb, with two, rarely three terminal coriaceous leaves, and a terminal raceme of flowers, with a deeply 3-lobed lip. The group includes species with hairy and with glabrous inflorescence. Of the hairy flowered are the original *D. macrophyllum*, which ranges from Java to the Philippines and New Guinea; and *D. Gordoni*, Horne (*Journ. Linn. Soc.* xx. 372), from the Fiji Islands; and of the glabrous-flowered are *D. atro-violaceum*, *D. chloropterum*, Reichb. f. & S. Moore (in *Trim. Journ. Bot.* 1878, 137, t. 196) from New Guinea, and *D. triprinum*, Rolfe (*Annals of Botany*, vol. v. p. 507) from the Solomon Islands. In Veitch's

Manual (*Dendrob.* p. 60) *D. macrophyllum* is referred to the sub-section *Calostachyæ* of sect. *Eudendrobium*, which is, I think, an error.

D. atroviolaceum was introduced from New Guinea in 1890; and the specimen here figured was received from F. Wigan, Esq., of Clare Lawn, East Sheen, in December of last year.

Descr.—*Pseudobulbs* tufted, 8–12 inches long, fusiform, deeply channelled, young smaller, green, sessile; older raised on an inclined 2-5-jointed stipes, yellow brown, with an oblong, obtuse, basal sheath. *Leaves* two, terminal on the pseudobulb, 3–5 inches long, spreading, sessile, oblong, obtuse, convex, very coriaceous, dark green above, very pale almost silvery beneath, with green parallel nerves. *Peduncle* from between the leaves, erect; green, with few distant, closely appressed sheaths. *Raceme* many-fld., inclined; bracts small, pale, $\frac{1}{4}$ in. long, sheathing the pedicel, which, together with the slender ovary, is an inch long. *Flowers* many, 3 inches in diameter. *Sepals* and *petals* primrose yellow on both surfaces, with claret-colrd. spots, more or less twisted, and with recurved margins, sepals ovate, subacute; petals oblong, acute, but appearing spathulate, the margins being revolute for the lower two-thirds of their length. *Mentum* short, incurved. *Lip* about as long as the sepals, 3-lobed, lateral lobes ear- or fan-shaped, erect, with strongly recurved margins; disk violet, striped with white, 2-lamellate between the lobes; mid-lobe heart-shaped, strongly recurved, basal half dark violet, streaked with white, terminal half yellow, spotted like the petals. *Column* very short; anther depressed; pollinia bipartite, seated on a rather large gland.—*J. D. H.*

Fig. 1, Lip with one lateral lobe removed; 2, column and base of lip; 3; anther; 4 and 5, pollinia:—*All enlarged.*

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Tab. 7372.

SALVIA macrostachya.

Native of Ecuador.

Nat. Ord. Labiatæ.—Tribe Monardeæ.

Genus Salvia, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. ii. p. 1194.

Salvia (Calosphace) *macrostachya*; fruticosa, elata, hirsuto-tomentosa, foliis petiolatis ovato-roundatis acutis crenatis basi profunde cordatis auriculis rotundatis imbricatis utrinque pubescenti-villosis, floralibus late ovatis herbaceis calycem superantibus glanduloso-villosis persistentibus, petiolo 3–5-pollicari, spicis densis, rachi robusto, verticillastris imbricatis multifloris, floribus sessilibus, calyce paullo recurvo tubuloso glanduloso-piloso, labio superiore brevi ovato integro dentibusque labii inferioris acutis, corollæ pallide cœrulæ tubo calyce æquilongo, labio superiore oblongo obtuso, inferiore longiore lobis lateralibus brevibus rotundatis, intermedio multo majore late obcordato, connectivi ramo postico longe exserto glabro quam antico lineari-oblongo duplo longiore, staminodiis 2 filiformibus apice furcatis, disco crasso antice in processum carnosum nuculas superantem producto.

S. macrostachya, *Kunth in Humb. Bonpl. & Kunth Nov. Gen. & Sp. Pl. Amer.* vol. ii. p. 298. *Benth. Lab. Gen. & Sp.* 273; et *in DC. Prodr.* vol. xii. p. 322; et *Plant. Hartweg*, p. 243.

A stately Sage, discovered near Quito, the capital of Ecuador, by Humboldt, nearly a century ago, at an elevation of 10,000 ft., and more recently found in New Grenada, near the city of Popayan, at about the same elevation. It has also been collected by Hartweg in the valley of Cuenca, a province of Ecuador, S.E. of Guyaquil, between 8000 and 9000 ft. above the sea, whence probably the error of Tafalla, who is the authority for its being found near the hot, insalubrious town of Guyaquil itself, on the seacoast of Ecuador.

The plant figured was raised from seed sent to the Royal Gardens, Kew, from the Botanical Gardens of Quito, in 1893, which attained six feet in height, flowered in a cool greenhouse in the month of March, and formed a very striking object.

Descr.—*Stem* six feet and more high, shrubby below, erect, strict, branched, hirsute with soft spreading hairs, which are glandular on the inflorescence; branches stout,

tetragonous. *Leaves* petioled, lower eight inches long and nearly as broad, orbicular-cordate with overlapping basal lobes, obtuse or acute, crenate, dark green, many nerved and reticulate, pubescent on both surfaces; petiole three to five inches long, rather slender. *Spike* a foot or more long, sessile, robust, very many and dense-flowered; whorls crowded, many-flowered; floral bracts green, herbaceous, persistent, broadly ovate-cordate, two inches long, pale green, tips recurved. *Flowers* shortly pedicelled, pedicels calyx and corolla sparsely glandular hairy. *Calyx* nearly an inch long, broadly tubular, shortly 2-lipped, upper lip and teeth of the lower acute. *Corolla* pale blue; tube hardly longer than the calyx, funnel-shaped, glabrous within; limb one and a half inches across the upper and lower lips; upper lip oblong, obtuse, erect; side lobes of the lower short, rounded; mid-lobe large very broadly obcordate, deeply 2-lobed. *Stamens* far exserted, filaments short, included; upper branch of the connective glabrous more than twice as long as the linear-oblong obtuse deflexed lower; anther-cells linear-oblong; staminodes small, filiform, ascending, bifid at the tip. *Disc* very thick, fleshy, produced behind into an oblong obtuse column overtopping the oblong hairy, notched nutlets.—*J. D. H.*

Fig. 1, Calyx, style and flower-bud; 2, tube of corolla laid open showing the stamens and staminodes; 3 and 4, anthers; 5, disk and nutlets:—*All enlarged*; 6, *reduced* view of whole plant.

M S del. J N Fitch lith.

Tab. 7373.

RHODODENDRON Schlippenbachii.

Native of Manchuria and Japan.

Nat. Ord. Ericeæ.—Tribe Rhodoreæ.

Genus Rhododendron, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. ii. p. 599.)

Rhododendron (Azalea) *Schlippenbachii*; fruticosa, ramulis robustis glanduloso-setulosis, foliis ad apices ramulorum sessilibus subverticillatis patulis breviter petiolatis late obovatis subsinuato-lobatis apice obtusis rotundatis v. emarginatis submembranaceis ciliatis, supra pilosis pilis appressis caducis, subtus pallidis costa nervisque pilosis, floribus præcocibus v. subpræcocibus umbellatis, pedicellis calyce parum longioribus glanduloso-pilosis, sepalis $\frac{1}{6}$ poll. longis oblongis glanduloso-ciliatis, corolla rotato-infundibulari, tubo brevissimo limbi rosei lobis ovatis 3 posticis maculatis, staminibus 10 declinatis superioribus sensim longioribus, filamentis basi puberulis, stylo basi glanduloso-piloso, capsula ovoidea scabrida 5-loculari, stigmate 5 lobo.

R. Schlippenbachii, *Maxim. in Bull. Acad. Sc. Petersb.* vol. xv. (1871) p. 226 (*Mel. Biol.* vol. vii. p. 333), and *in Mem. Acad. Sc. Petersb.* vol. xvi. (1870) (*Rhod. As. Or.*) 29, t. ii. fig. 7–13). *Franch. & Sav. Enum. Pl. Japan*, vol. i. p. 289. *Hemsl. in Journ. Linn. Soc.* xxvi. (1889) 30. *Gard. Chron.* 1894, vol. i. p. 462, fig. 58.

R. Schlippenbachii was, according to its author, the lamented Maximovicz, discovered by Baron Schlippenbach amongst shrubs on the shores of Possjet Sound in Russian Manchuria. It is also a native of Korea and its Islands, where Oldham collected it on Herschel Island in 1863. It is in cultivation in the city of Jedo, Japan, where it was probably procured from Tsu-sima, and is called by the Japanese horticulturalists Kurofune tsutsusi. From the texture of the foliage it is referable to the *Azalea* group of the genus, amongst which it is the largest leaved.

Descr.—A shrub about three to five feet high, densely or loosely branched and leafy. *Branches* smooth; young branchlets setose with crisped glandular hairs. *Leaves* subquinately as it were whorled at the ends of the branchlets, sessile, of a thin texture and (as in Azalea) produced

more or less after flowering, two to four inches long, obovate, narrowed into a very short petiole; tip rounded, or truncate and emarginate with an apiculate gland in the sinus; margins entire, obscurely undulate or sinuate and ciliate, very young tomentose beneath. *Flowers* produced before the leaves, umbellate; pedicels and calyces glandular-hairy. *Calyx lobes* about one-sixth of an inch long, broadly oblong or rounded, persistent. *Corolla* three inches in diameter, pale rose-coloured, tube none or very shortly infundibular; lobes broadly ovate, spreading, the three upper speckled with red-brown towards the base. *Stamens* 10, filaments very slender, pubescent below; anthers small. *Orary* short, conical, obtuse, densely glandular, 5-celled; style slender, glandular-pubescent below the middle; stigma small, truncate. *Capsule* two-thirds of an inch long, oblong, obtuse glandular.—*J. D. H.*

Fig. 1, Tip of young leaf; 2, calyx and style; 3 stamen; 4, ovary :—*all enlarged*; 5, capsules, *of the natural size.*

M.S del. J.N Fitch lith.

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Tab. 7374.

FRITILLARIA aurea.

Native of Asia Minor.

Nat. Ord. Liliaceæ.—Tribe Tulipeæ.

Genus Fritillaria, *Linn.*; (*Benth. & Hook. f. Gen. Pl.* vol. iii. p. 817).

Fritillaria (*Monocodon*) *aurea*; bulbo parvo squamis paucis crassis, caule spithamæo monocephalo, foliis 6–10 lanceolatis ascendentibus glaucescentibus infimis sæpissime oppositis reliquis alternis, perianthio cernuo breviter pedunculato late campanulato citrino intus minute tessellato, segmentis oblongis diu late imbricatis supra basin nectario orbiculari viridi profunde impresso præditis, staminibus perianthio distincte brevi oribus antheris lineari-oblongis citrinis, stylo trifurcato.

F. aurea, *Schott in Ester. Bot. Wochenbl.* (1854), vol. iv. p. 137; *Walp. Ann.* vol. vi. p. 106. *Baker in Journ. Linn. Soc.* vol. xiv. p. 259; in *Gard. Chron.* 1876, p. 720. *Boiss. Fl. Orient.* vol. v. p. 183. *Regel Gartenf.* tab. 840, fig. 1. *Rev. Hort.* 1878, p. 287, with figure. *Garden*, July 23, 1892, with figure.

This pretty little Fritillary is easily recognized by its dwarf habit and large drooping bright yellow flower, faintly tessellated inside. In bulb and stigmas it agrees with our indigenous *F. Meleagris*, but the nectary is orbicular instead of linear and is more deeply impressed. It was first found by Kotschy in the Cilician Taurus, from which locality we have, in the Kew herbarium, dried specimens collected by Mrs. A. E. Danford in 1876. In the same year it was brought into cultivation by Leichtlin, but it has been very little known till lately, when a good supply of bulbs has been sent to Kew and various cultivators by Mr. Whittall, of Smyrna. Our drawing was made from plants received from him which flowered in the Alpine House at Kew in March and April. The specimens show considerable variation in the size and tessellation of the flower.

Descr.—*Bulb* small, with a few thick scales. *Stem* one-flowered, a span long. *Leaves* seven to ten, ascending, lanceolate, glaucescent, two or three inches long, the lowest pair usually opposite, the others alternate. *Flower* solitary, cernuous, shortly peduncled, campanulate, an inch and a

half in diameter, bright yellow, with small dark brown distant cross-bars between the vertical ribs; segments oblong, obtuse, much imbricated, each furnished with a glistening orbicular deeply impressed nectary a short distance above the base. *Stamens* much shorter than the perianth; anthers linear-oblong, pale yellow, about as long as the glabrous filaments. *Style* as long as the ovary, shortly three-cleft.—*J. G. Baker.*

Fig. 1, front view of stamen; 2, back view of stamens; 3, pistil:—*All enlarged.*

M S del J.N Fitch lith

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Tab. 7375.

TROCHODENDRON aralioides, *Sieb. & Zucc.*

Native of Japan.

Nat. Ord. Magnoliaceæ.—Tribe Trochodendreæ.

Genus Trochodendron, *Sieb. & Zucc.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 954.)

Trochodendron *aralioides;* frutex v. arbor parva, sempervirens, 8–16 pedalis, glaberrima, ramis teretibus cortice aromatico, ramulis robustis, gemmis perulatis, foliis spurie verticillatis longe petiolatis exstipulatis obovatis ovatis v. oblongo-ovatis rarius rhombeis longe obtuse acuminatis cuspidatisve crenato-serratis coriaceis supra lucidis, floribus in racemos terminales erectos sessiles dispositis, rachi stricta, pedicellis 1–2-pollicaribus patentibus, bracteis linearibus caducis, bracteolis pedicello positis brevibus linearibus, calycis tubo patelliformi muriculato limbo integerrimo, corolla 0, staminibus perplurimis ore calycis uniseriatim verticillatis, filamentis gracilibus patenti-recurvis, antheris oblongis apiculatis, ovariis ad 10 verticillatis basibus calycis tubo immersis dorso gibbis, stylis brevibus crassis recurvis, stigmatibus oblongis sulcatis, ovulis numerosis angulo interiore insertis, carpellis maturis 2-valvibus, seminibus paucis pendulis linearibus.

T. aralioides, *Sieb. & Zucc. Fl. Jap.* vol. i. p. 83, t. 39, 40. *Miquel Ann. Mus. Lugd. Bat.* vol. ii. (*Prolus. Fl. Japon*) p. 258. *Franch. & Sav. Enum. Pl. Japan*, vol. i. p. 19. *Gard. Chron.* 1894, vol. i. p. 716, fig. 91. *Seemann Journ. Bot.* vol. ii. (1864), p. 237. *Eichler in Flora*, 1864, p. 449, *et* 1865, p. 12, *et in Seem. Journ. Bot.* vol. iii. (1865), p. 150.

Gymnanthus paradoxus, *Jungh. in Hoev. & de Vriese Tidschr.* vol. vii. (1840), p. 308.

A very singular plant, with the habit of an Aralioid and especially of some species of *Heptapleurum*, which induced Mr. Bentham (who had seen no specimens) when describing the *Magnoliacea* for the "Genera Plantarum" to suggest its belonging to that family. It had, however, been rightly placed in *Magnoliacea* by Siebold and Zuccarini, though it does not belong to the tribe *Winteracea* to which these authors had referred it. As determined by Eichler, it forms along with the Japanese and Himalayan genus *Euptelea*, a distinct tribe of *Magnoliacea*, the *Trochodendrea*, distinguished conspicuously by the absence of sepals and petals, and which ranks with some authors as a separate Order.

T. aralioides is a native of moist alpine woods in the Islands of Yéso and Nippon, where it is found with species

of *Camellia* and *Ilex*, flowering in spring and ripening its fruit in summer. The bark and foliage are very aromatic. The specimen figured was sent to Kew by Messrs. Veitch, who flowered it at Combe Wood Nursery in April of the present year. The fruit represented is from a Herbarium specimen.

A form with very different leaves, oblanceolate with long points, was separated under the name of *T. longifolium*, and published by Maximovicz in the "Index Seminum Hort. Petrop. in 1805, p. 34," but it was subsequently reduced by the same author (Melanges Biolog. pt. viii. p. 371) to a variety of *araliioides*.

Descr.—An evergreen, large shrub or small tree, twelve to sixteen feet high, glabrous all over, with rather stout stems; bark aromatic; branches terete, green with brown annular scars. *Leaves* three to four inches long, long-petioled, ovate or oblong-ovate, obtusely acuminate, crenate-serrate, coriaceous, bright green and shining above; petiole one to one and a half inches long. *Flowers* in erect terminal sessile racemes, long pedicelled; rachis of raceme stout, green; pedicels one to one and a half inches long, green, horizontally spreading; bracts linear, caducous; bracteoles on the pedicels, setaceous. *Flowers* three-quarters of an inch diam. across the stamens. *Calyx-tube* depressed hemispheric, limb 0. *Petals* 0. *Stamens* very many in a whorl on the mouth of the calyx-tube, filaments slender all of one length, spreading and recurved; anthers adnate, erect, oblong, obtuse. *Carpels* about ten, connate in a whorl, the bases confluent with the calyx-tube; styles short, recurved, stigmas oblong. *Fruit* one-half to three-quarters of an inch in diam., formed of the calyx and about ten rather fleshy follicular few-seeded carpels.—*J. D. H.*

Fig. 1, Flower with the stamens recurved; 2, anther before dehiscence; 3, transverse section of anther before dehiscence; 4, longitudinal view of ditto after dehiscence; 5, vertical section through a carpel:—*all enlarged.* 6, fruits from a Herbarium specimen, of the *nat. size.*

J. & del. J N Fitch lith

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Tab. 7376.

SOBRALIA sessilis.

Native of British Guiana.

Nat. Ord. Orchideæ.—Tribe Neottieæ.

Genus Sobralia, *Ruiz et Pav.*; (*Benth. et Hook. f. Gen. Plant.* vol. iii. p. 590.)

Sobralia *sessilis*; caulibus gracilibus brunneo-hispidulis, foliis paucis 3–4-pollicaribus ovato-lanceolatis acuminatis supra læte viridibus nervis impressis, subtus rufo-brunneis valide costatis, floribus solitariis sessilibus, bracteis lineari-lanceolatis erectis punctatis, floribus roseis 3 poll. diam., perianthii tubo pollicari, sepalis petalisque consimilibus linearibus acutis recurvis v. revolutis dorso marginibusque pallidis, labello petalis æquilongo, tubo basi sub-gibboso, limbo recurvo ovato erosedentato saturate roseo apice albido basi lamellis 2 brevibus aucto, columna facie medio versus auguste 2-alata apice bicruri, cruribus incurvis antheram subrostratam marginantibus.

S. sessilis, *Lindl. Bot. Reg.* vol. xlvii. (1841), t. 17; *et Misc.* p. 3 (*non Bot. Mag.* t. 4570, *quæ* S. decurva, *Batem*). *Fol. Orchid. Sobralia*, n. 6.

S. Galeottiana, *Lindl. Fol. Orchid.* l.c. n. 5 *partim* (*non A. Rich.*)

Sobralia sessilis is a Guiana species discovered by the late Sir Robert Schomburgk in about 1840, from whom it was received by Messrs. Loddiges, who again communicated specimens to Dr. Lindley that were figured in the Botanical Register in 1841. A very similar but different plant was figured in the Botanical Magazine (t. 4570) under the same name, from being supposed to be the same species. The latter is *S. decora*, Bateman (Orchids of Mexico and Guatemala, t. 26) a native of Guatemala, which has a green stem, leaves pale beneath, pale sepals and petals, and a pale pink lip with a more orbicular termination. The plate with its erroneous name was pirated in Lemaire's Jardin Fleuriste (vol. i. t. 104). These species are further confounded by Lindley, who, in the Folia Orchidacea, besides keeping up *S. sessilis* and *decora*, takes up A. Richards' *S. Galeottiana* of Mexico, adding Demerara to its habitat. The fact is, as Mr. Rolfe has ascertained, Richards' *Galeottiana* is Bateman's *decora* (published two years earlier) and the Demerara plant is *sessilis*.

September 1st, 1894.

There are native specimens of *S. sessilis* in the Kew Herbarium from the Mazaruni river, collected and sent by Mr. Jenman, F.L.S., Government Botanist and Superintendent of the Botanical Garden of Georgetown, Demerara, who states that it attains four feet in height. The specimen here figured was communicated by Sir John Kirk, G.C.M.G., F.R.S., &c., which flowered in a stove in the Royal Garden in April last.

Descr. Stems three to four feet high, loosely tufted and rooting, as thick as a crow-quill, dark green and thickly granulate with red-brown short tubercle based hairs. *Leaves* few, three to four inches long ovate-lanceolate, acuminate, many-nerved spreading and recurved, dark green above with sunk nerves, red-brown beneath with strong ribs. *Flowers* solitary, terminal, sessile, three inches across the petals, rose-red, with a much deeper coloured lip. *Bracts* linear lanceolate erect, dark green, spotted with brown, about equalling the perianth-tube. *Perianth-tube* nearly an inch long, rather slender funnel-shaped at the lip. *Sepals* and *petals* subsimilar, linear acute spreading and recurved or almost revolute, margins and undersurface pale. *Lip* as long as the sepals, tube broad rather gibbous at the base, tip expanding into an ovate recurved obtuse limb with recurved erose margins ; disk at the base within, with two short lamellæ. *Column* rather stout, with two narrow short wings on the face about the middle ; top subclavate, terminating in two incurved and recurved semilunar horns, which form an arch and almost meet over the anther. *Anther* shortly obtusely beaked.—*J. D. H.*

Fig. 1, Side, and 2, front view of column ; 3, anther :—*All enlarged.*

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Tab. 7377.

URARIA crinita.

Native of the East Indies.

Nat. Ord. Leguminosæ.—Tribe Hedysareæ.

Genus Uraria, *Desv.*; (*Benth. & Hook.f. Gen. Plant.* v. i. p. 521.)

Uraria, *crinita*; suffruticosa, pilis uncinatis hirsuta, caule e basi decumbente erecto elato, foliolis 2–4-jugis (rarissime solitariis) oblongis acutis supra glabris v. scaberulis subtus puberulis et reticulatis, stipulis e basi late cordata repente cuspidatis, racemis 1–2-pedalibus breviter pedunculatis strictis cylindraceis multi-densifloris, pedunculo bracteis ovato-lanceolatis imbricatis velato, bracteis floralibus bifloris caducis, pedicellis filiformibus decurvis floribus subæquilongis hirsutis, calycis segmentis lanceolato-subulatis pilis basi tuberculatis ciliatis, 2 supremis brevioribus vexillo ovato, carina alisque apicibus rotundatis, legumine minuto cycloideo 3–4-articulato.

U. crinita, *Desv. Journ. Bot.* vol. iii. p. 122, t. 5, f. 19. *DC. Prodr.* vol. ii. p. 324. *Wall. Pl. As. Rar.* vol. ii. p. 8; *Cat.* n. 5675. *Thw. Enum. Pl. Zeyl.* p. 85, 411. *Trim. Cat. Ceyl. Pl.* p. 24. *Benth. Fl. Hongk.* 81; *Pl. Jungh.* p. 214. *Miq. Fl. Ind. Bat.* vol. i. p. 268. *Hassk. Pl. Jav. Rar.* p. 351. *Baker in Hook.f. Fl. Brit. Ind.* vol. i. p. 155.

U. macrostachya, *Wall. l. c.* t. 110.

U. picta, *Wight Ic. Pl. Ind. Or.* t. 411 (*non Desv.*).

U. comosa, *DC. l.c.*

Doodia crinita, *Roxb. Fl. Ind.* vol. iii. p. 369.

Hedysarum crinitum, *Linn. Mant.* p. 102. *Burm. Fl. Ind.* p. 169, t. 56. *Roxb. Hort. Beng.* p. 57.

H. comosum, *Vahl, Symb.* vol. ii. p. 84.

H. lanseum, *Noronh. Vert. Bat. Gen.* vol. v. p. 77.

The genus *Uraria* consists of eight or ten species, all natives of the Old World, the handsomest of which is that here figured. It is a native of British India, from Bengal and Assam, eastward through Burma to China, and southward to Malacca and the Malay Islands, extending to Timor Laut, but not into Australia, nor is it indigenous in Ceylon. In the Flora of British India it is erroneously stated to be a native of the Himalaya (ascending to 9000 ft.). It was no doubt there confounded with *U. picta*. Seeds of it were sent to the Royal Gardens, Kew, in

November, 1892, by Mr. Ford, F.L.S. (Superintendent of the Botanical Garden of Hong-kong). Plants reared from this source flowered in September, 1893. Mr. Watson informs me that a group of these, each bearing a tall raceme of rose-purple flowers, was a great attraction to visitors. The plants died down to the base after flowering.

Descr. A tall suffruticose plant, covered except the leaflets and perianth with hooked hairs, woody, and often decumbent below, and sending up annual herbaceous leafing and flowering branches five feet high, with spikes of pink-purple flowers twenty inches long. *Leaves* alternate, spreading and drooping; petiole and rachis terete; leaflets two to four pairs, rarely solitary, four to six inches long by one and a half to two inches broad, linear-oblong, acute, bright green, smooth or scaberulous above, pubescent and finely reticulate beneath; nerves six to ten pairs; stipules broadly cordate, suddenly narrowed into a long subulate point, ciliate, pink; stipels subulate. *Raceme* one to two feet, shortly peduncled, cylindric; peduncle clothed with ovate-lanceolate persistent bracts. *Flowers* in densely crowded pairs; pedicels half an inch to an inch long, filiform, decurved, ciliate; flower-bracts two-flowered, ovate-lanceolate, caducous, upper more slender, uppermost forming a pink brush terminating the raceme. *Calyx* one-sixth inch long; segments subulate, fringed with tubercle-based hairs, two upper shorter connate below. *Standard* ovate, violet-purple within, pale blue externally; wings pale rose, shortly clawed, tips rounded; keel-petals semicircular, with subulate curved claws, tips rounded. *Pods* very small, on incurved pedicels, each twisted on itself, forming a ring of about four small shining joints, the whole not broader than the spreading persistent calyx-segments.—*J. D. H.*

Fig. 1, Portion of rachis of raceme; 2, flower, with the corolla removed; 3, standard; 4, wing-petal; 5, keel; 6, ovary; 7, fruit:—*all enlarged.*—fig. 8, view of the whole plant *greatly reduced.*

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Tab. 7378.

SENECIO LAXIFOLIUS.

Native of New Zealand.

Nat. Ord. Compositæ.—Tribe Senecionideæ.

Genus Senecio *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. ii. p. 446.)

Senecio *laxifolius*; arbuscula eglandulosa, ramis foliis subtus paniculisque tomento albido appresso opertis, foliis $1\frac{1}{2}$–$2\frac{1}{2}$ poll. longis coriaceis elliptico-oblongis obovatisve obtusis acutisve in petiolum angustatis integerrimis supra glabris nervis creberrime reticulatis, supremis minoribus subsessilibus obovatis, petiolo $\frac{1}{2}$–$\frac{3}{4}$ poll. longo, paniculis terminalibus laxifloris ramis gracilibus bracteis paucis linearibus instructis, capitulis suberectis gracile pedicellatis 1-poll. diam. aureis, involucri campanulati bracteis lineari-oblongis subacutis membranaceis, extimis paucis linearibus patulis, fl. radii 12–15 ligulis ellipticis apice 3-dentatis, acheniis cylindraceis sulcatis glabris apice dilatatis, pappi setis inæqualibus scaberulis albis.

S. laxifolius, *Buchanan in Trans. N. Zeald. Instit.* vol. ii. (1870) p. 89.
S. latifolius, *Mast. in Gard. Chron.* (1894) ii. fig. 43, *non Banks & Sol.*

M. Buchanan, the describer of this species, compares it with *S. Monroi*, distinguishing it by its habit, its larger flat acute leaves, which are never wrinkled on the margin, long-peduncled corymbs, larger flowers, and absence of glandular pubescence on the involucre and pedicels. It is much nearer *S. Greyii*, Hook. f. (Handb. of N. Zeal. Fl. p. 161), differing in the laxer habit, smaller leaves, eglandular involucres and especially in the almost glabrous achenes; it may be said to represent in the Southern Island *S. Greyii*, which is confined to the Northern.

S. laxifolius was discovered by Mr. Travers in the mountains of the Nelson province, where it has since been gathered by several collectors; it extends from thence to the Canterbury Alps, where it was found by Mrs. Hetley. The figure is taken from a specimen kindly communicated by W. Gumbleton, Esq., of Belgrove, Queenstown, Co. Cork, in June of the present year under the name of *S. Greyii*.

October 1st, 1894.

Descr. A small much branched shrub; branches leaves beneath petioles, corymbs and involucre clothed with dense pale buff or white appressed tomentum. *Leaves* one and a half to two and a half inches long, elliptic-oblong or linear-oblong, rarely ovate or obovate, obtuse or acute, quite entire or very obscurely crenate, base acute, coriaceous, glabrous above with finely reticulate nervules; petiole one-half to three-quarters of an inch long, slender. *Heads* about one inch in diameter, in very loose terminal subcorymbiform panicles, with rather slender erect long pedicels, and small scattered often obovate petioled or sessile leaves, the uppermost of which are linear. *Involucre* eglandular, shortly campanulate, base broad; outer bracts few linear spreading, inner erect, linear-oblong, acuminate; receptacle nearly flat. *Ray-flowers* twelve to fifteen; ligules one-third of an inch long, spreading, elliptic-oblong, tip minutely 3-toothed, 2-nerved, golden-yellow; tube quite glabrous; style-arms very short, obtuse; ovary short glabrous. *Disk flowers* more numerous than those of the ray, tubular, slightly dilated above the middle, teeth short. *Stamens* shortly exserted; anther-cells shortly free at the base and acute, connective obtuse; style-arms exserted, short, truncate; ovary short, glabrous. *Pappus-hairs* unequal, scaberulous, white. *Achene* narrow, with a dilated white apex, sparingly ribbed, quite glabrous or with a few very short obscure hairs.—*J. D. H.*

Fig. 1, Involucral bract; 2, flower of ray; 3, its style-arms; 4, flower of disc; 5, stamens; 6, style-arms; 7, achene; 8, pappus hair:—*All enlarged.*

Tab. 7379.

IRIS atropurpurea, *var.* atrofusca.

Native of Palestine.

Nat. Ord. Irideæ.—Tribe Moræeæ.

Genus Iris, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 686.)

Iris (*Oncocyclus*) *atropurpurea*, var. *atrofusca*; rhizomate crasso cylindrico, foliis ensiformibus flaccidis pallide viridibus, caule pedali unifloro, spathæ valvis magnis lanceolatis ventricosis pallide viridibus, pedicello brevissimo, perianthii tubo elongato cylindrico, limbo atrofusco, segmentis exterioribus obovato-cuneatis reflexis ungue velutino-piloso, segmentis interioribus majoribus erectis obovatis unguiculatis, styli ramis dorso convexis appendicibus magnis quadratis reflexis, antheris magnis linearibus albis.

I. atrofusca, *Baker in Gard. Chron.* 1893, vol. i. p. 384.

A full account of the Irises of the subgenus *Oncocyclus*, by Professor Michael Foster, with directions for their cultivation, appeared lately in the Garden (1893, vol. i. p. 130). They all inhabit Palestine, Syria, and Asia Minor, and require less humidity and more sunshine than we can give them in England, and in their native homes die down to the rootstock and remain at rest for a large part of the year. As above cited, I described the present plant in 1893 as a species, from specimens procured from the east of the Jordan by Messrs. Herb and Wulle of Naples. Now after studying fuller material I look upon it as a variety of *atropurpurea*, Baker, which was first imported in 1889 from Palestine by Messrs. Dammann and Co. Our plate was drawn from specimens flowered in Gloucestershire in April, 1894, by H. J. Elwes, Esq.

Descr. Rootstock thick, fleshy, cylindrical. *Leaves* about six to a stem, ensiform, weak, pale green, the outer sometimes a foot long at the flowering season. *Peduncle* one-flowered, a foot long, nearly hidden by the sheathing inner leaves. *Spathe*-valves lanceolate, pale green, ventricose, three or four inches long; pedicel very short. *Perianth*-

tube cylindrical, green, two or two and a half inches long; limb dark brown; outer segments obovate-cuneate, reflexed, three inches long by half as broad, with a velvety cushion of hairs spread all over the claw; inner segments erect, obovate, unguiculate, longer and broader than the inner. *Style*-branches paler brown, very convex; appendages large, quadrate, reflexed. *Anthers* large, linear white. *Capsule* and *seeds* not seen.—*J. G. Baker.*

Fig. 1, Face of anther; 2, back of anther; 3, apex of style, with its appendages :—*All enlarged.*

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Tab. 7380.

TRICHOCENTRUM TIGRINUM.

Native of Central America.

Nat. Ord. Orchideæ.—Tribe Vandeæ.

Genus Trichocentrum, *Poepp.*; (*Benth. & Hook. f. Gen. Pl.* vol. iii. p. 559.)

Trichocentrum, *tigrinum*; foliis sessilibus oblongis obtusis luride viridibus rubro maculatis, pedunculis flexuosis 1–2-floris, bracteis ovatis acutis roseis, sepalis lateralibus linearibus obtusis dorsalique oblongo subacutis aureis rubro punctatis, petalis sepalis lateralibus consimilibus et concoloribus, labello sepalis multo majore cuneato-obovato retuso lateribus recurvis albo basin versus roseo striato, disco basi 3-calloso, callis brevibus aureis compressis acutis et pone callos dentibus 2 erectis instructo, columna alba apice 2-auriculata, auriculis palmatim fimbriatis, anthera pubescente.

T. tigrinum, *Lind. & Reichb. f. in Gard. Chron.* (1869) p. 892. *E. André in Illustr. Hortic.* vol. xxiv. (1877) p. 93, t. 282. *Warner Orchid. Album*, t. 484. *Lindenia*, vol. i. p. 53, t. 24. *William's Orchid Growers' Man.* Ed. 6, p. 589.

According to a statement in Warner's Orchid Album, *T. tigrinum* is a native of Central America, where it was discovered by Mr. Richard Pfau, when collecting for M. Linden, who received it in 1869. It is well figured in the works cited; in one of which (*Lindenia*) a slight variety with more spots on the sepals and petals is called var. *splendens*. The genus contains about twenty-four described species, all natives of tropical America, of which two have been figured in this work, namely *T. fuscum*, Lindl., t. 3969; and *T. albo-purpureum*, Reichb. f., t. 5688.

The plant figured was obtained from Messrs. F. Sander and Co. of St. Albans, in 1893, and flowered in a warm house of the Royal Gardens, Kew, in May of the following year.

Descr. Stemless. *Leaves* sessile, two and a half to three and a half inches long, oblong, obtuse, very coriaceous, obscurely keeled, dull green speckled with red, the younger pale green flushed with red beneath. *Peduncles*

two to three inches long, flexuous, dull green, one-flowered or with the rudiment of a second flower; bracts one-third to one-half of an inch long, ovate, acute, concave, membranous, dull red. *Flowers* pendulous, or with the pedicel upcurved and then ascending; pedicel with ovary one to one and a half inches long. *Perianth* nearly three inches across the petals. *Lateral* sepals broadly linear, and broader dorsal obtuse, golden yellow speckled with red. *Petals* like the lateral sepals, and of the same colour. *Lip* much larger than the sepals, cuneately obovate, emarginate, sides recurved, white streaked with rose towards the base; disk near the base with three elongate laterally compressed triangular acute golden calli, behind which are two erect subulate teeth. *Column* stout, white, tip with a projecting fimbriate auricle on each side. *Anther* pubescent; pollinia pyriform sessile on the tip of a linear truncate strap which is seated on a depressed orbicular gland.—*J. D. H.*

Fig. 1, Column and base of lip; 2, front view of column; 3, anther; 4 and 5, pollinia:—*All enlarged.*

M.S.del, J.N.Fitch.lith

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Tab. 7381.

IMPATIENS auricoma.

Native of the Comoro Islands.

Nat. Ord. Geraniaceæ—Tribe Balsamineæ.

Genus Impatiens, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 277.)

Impatiens, *auricoma*; glaberrima, caule erecto, foliis alternis longe petiolatis lanceolatis acuminatis crenatis sinubus aristulatis supra laete viridibus subtus pallidis, petiolo roseo basi 2-tuberculoso, pedunculis axillaribus erectis petiolis longioribus unifloris, floribus aureis, sepalis 3 dorso carinatis, lateralibus orbiculatis apice mucronatis, dorsali erecto galeato marginibus recurvis dorso infra apicem mucronato, petalis 5, lateralibus per paria in laminas 2-lobas connatis, lobo superiore transverse oblongo marginibus recurvis, inferiore minore rotundato, petalo dorsali late cymbiformi mucronato dorso obtuse 2-carinato et 2-calcarato, calcaribus parvis divaricatis uncinatis obtusis.

I. auricoma, *Poisson, Le Jardin*, 1893, p. 53; 1894, p. 9, f. 3. *Baillon in Bull. Soc. Linn. Paris*, p. 598. *S. Mottet in Gard. Chron.* 1894, vol. i. p. 556.

A handsome perennial Balsam, introduced accidentally with tree-fern trunks from the Comoro Islands by M. Humblot, traveller to M. Landry, the well-known cultivator of Palms in Paris. It is described as growing to two feet in height in M. Landry's nurseries, branching from the base, and flowering profusely in the open air in summer, and throughout the winter if taken up, potted, and kept in a temperate house. Plants of it in the Royal Gardens, Kew, from one of which the figure was made, were obtained from the nurseries of M. Godefroy-Lebeuf, of Argenteuil, which, when about six inches high, flowered in April of the present year, and continued flowering for more than a month; they were all unbranched.

Descr. A somewhat succulent erect quite glabrous perennial herb, six inches to two feet high, simple or branched from the base. *Stem* and branches terete, reddish, nearly as thick as a goose-quill. *Leaves* six inches long, alternate, spreading and decurved, lanceolate, acuminate, crenate with short red bristles between the crena-

tures, bright green above with a pale red midrib, pale green beneath; nerves six to ten pairs, strong beneath; petiole one and a half to two inches long, stout, red, with two small tubercles (stipular) at the base and a few red bristles towards the top on each side of the median furrow. *Peduncles* solitary or binate in the leaf-axils, erect, longer than the petioles, pale reddish. *Flowers* one inch long; perianth concave, golden yellow, streaked with red within. *Sepals* three, two lateral orbicular, apiculate, concave, greenish yellow, dorsally keeled; dorsal erect, galeate, with recurved margins and a minute dorsal spur below the tip. *Petals* five; lateral connate in pairs, upper lobes of each pair transversely oblong with recurved margins, lower much smaller, rounded; dorsal petal hemispheric, tip beaked, obtusely two keeled on the back, the keels ending in two divergent recurved very short spurs.—*J. D. H.*

Fig. 1, Spurred petal; 2, stamens; 3, ovary :—*All enlarged.*

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Tab. 7382.

STERCULIA AUSTRO-CALEDONICA.

Native of New Caledonia.

Nat. Ord. Sterculiaceæ.—Tribe Sterculieæ.

Genus Sterculia, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 217.)

Sterculia (Chrysodactylon) *austro-caledonica*; trunco subsimplici apice foliifero, foliis glaberrimis longe-petiolatis junioribus ovato-cordatis senioribus orbiculatis ad medium palmatim 5-lobis lobis oblongis obtusis integerrimis sinubus rotundatis, petiolo apice incrassato, panicula trunco longe infra folia enata sessili thyrsiformi puberula, floribus parvis aromaticis, calycis tubo brevi turbinato lobis patentibus ovatis apicibus incurvis lobulatis, lobulis aureis, antheris 10 simplici serie annulatim confertis sessilibus, carpellis maturis 5 oblongis crasse stipitatis polyspermis, **seminibus clavatis radicula hilo proxime.**

The very remarkable plant here figured will, I doubt not, be regarded as the type of a genus, when the heterogeneous collection of materials now included under *Sterculia* shall have been critically studied. As with other genera of unisexual trees with large leaves and fruits, many of its species are very imperfectly known, and recent collectors in tropical regions have added many to the number of these since the period when Schott, Endlicher and Brown published the results of their studies of the species known to them half a century ago. Schott in 1832 (Meletemata, p. 32) classified the number known to him under thirteen genera. Endlicher about 1838 (*Gen. Plant.* vol. i. p. 994) referred all but one of them back to *Sterculia*, which he divided into ten sections. In 1844 Brown admitted ten genera, and lastly, Bentham in the "Genera Plantarum" (vol. i. p. 217, 1862) proposed eight sections of the genus, more or less in accordance with those of Endlicher and the genera of Schott and Brown.

In as far as I know the genus, *S. austro-caledonica*

differs from all described ones in habit and the lobulate calyx-lobes, and from most in the uniseriate anthers forming a ring on the summit of the androœcium. Of these characters by far the most important is that of habit; for, instead of forming a branching tree, this species has an erect, simple, or nearly simple trunk, with a terminal crown of leaves, as in many species of *Aralia*, and the inflorescence proceeds directly from the trunk far below the insertion of the leaves. Whether or no these characters are of generic value cannot be determined satisfactorily, till the whole genus is fully investigated, but I in the meantime propose for it, as a sectional name, *Chrysodactylon*, in allusion to the golden colour of the finger-like tips of the calyx-lobes, which with the golden anthers contrast remarkably with the red of the perianth. This name, not being preoccupied, is at the service of any botanist who may work up the genus, and place the plant in its proper relation to its allies.

S. austro-caledonica has been cultivated for many years in the Palm House of the Royal Gardens, Kew, under the above name, and was probably received from the Jardin des Plantes. There are specimens of it in Kew Herbarium received from M. Lenormand, collected by Vieillard (No. 2347, 2394) with the following note, "Arbre presque simple, bois de Montagnes à Kauala." It flowered at Kew for the first time in the Water Lily House in April of this year, and the flowers had a penetrating aromatic smell.

Descr.—Trunk 10 ft. high and upwards, slender, simple, bearing at the summit a crown of large, long-petioled spreading leaves; bark pale brown, smooth. *Leaves* quite glabrous, of two forms, with intermediates, the earlier 4–6 inches long, oblong-cordate, quite entire; the later nearly 2 feet in diameter, suborbicular in outline, deeply palmately 5-lobed, with 5-7-strong nerves radiating from the petiole, dark green above, paler beneath; lobes oblong, obtuse, sinus rounded; base rounded, truncate or cordate; petiole 1–2 ft. long, stout, terete, top much thickened, obconic. *Inflorescence* a bright red, sessile, horizontal, pyramidal, pubescent thyrsus, springing from the side of the trunk, half way between the root and leaves; rachis, branches, and branchlets rather stout, ebracteate, uniformly red. *Flowers* $\frac{1}{2}$ inch in diameter; tube of calyx turbinate;

lobes 5, ovate, spreading, with incurved 5-lobulate tips, very dark red on opening, paler afterwards, the lobules golden-yellow. *Anthers* 10 in a ring on the top of the column. *Fruit* of 3–5 oblong, stipitate, coriaceous follicles, $1\frac{1}{2}$ in. long, or less, many-seeded.—*J. D. H.*

Fig. 1, Flower; 2, androecium; 3 and 4, anthers: *all enlarged*; 5, *reduced* figure of the plant.

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Tab. 7383.

STAPHYLEA colchica.

Native of the Southern Caucasus.

Nat. Ord. Sapindaceæ.—Sub Ord. Staphyleæ.

Genus Staphylea, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 412.)

Staphylea *colchica*; frutex ramulis gracilibus teretibus, foliis longe petiolatis 3–5-foliolatis, foliolis approximatis ovato-oblongis acuminatis serrulatis ima basi subtus puberulis, lateralibus sessilibus, terminali petiolulato, stipulis anguste linearibus fere filiformibus membranaceis, stipellis subulatis, racemis terminalibus suberectis oblongis basi subcompositis, sepalis linearibus obtusis revolutis pallide virescentibus, petalis paullo latioribus subspathulatis erectis albis apicibus recurvis, filamentis glabris, capsulæ lobis apice divergentibus seminibus diam. grani piperis.

S. colchica, *Steven in Bull. Soc. Nat. Mosc.* vol. ii. (1848), p. 276 *Walp. Ann.* vol. ii. p. 262. *Boiss. Fl. Orient.* vol. i. p. 954. *Gard. Chron.* (1887), vol. ii. p. 713, f. 137; (1891), vol. ii. p. 161, f. 22. *Gartenfl.* (1888) p. 501, *cum Ic. Grilli in Bull. Soc. Tosc. Ort.* vol. v. (1890), p. 235, f. 10.

The genus *Staphylea*, consisting of only five species, has a very wide range geographically, extending round the globe; though represented in each successive area by a different species. The type of the genus is the well-known Bladder-nut, *S. pinnata*, Linn., of our shrubberies, a native of Western Europe, extending thence to Asia Minor and Syria. In the South Caucasian region it is succeeded by the species here figured, to which it is very closely allied. Thence in proceeding Eastward there is a break, no representative having been as yet found in Persia. In Affghanistan the Himalayan *S. Emodi* appears, as a small tree, which extends to Kashmir, and thence to the borders of Nepal; but no further Eastwards in Asia, where it is succeeded by the closely allied arboreous genus *Turpinia*, which reaches the coast of China. In China, as Mr. Hemsby informs me, there are three species, the *S. Bumalda*, Sieb. of Japan, another closely resembling *S. Emodi*, and a third which is undescribed. In Japan the *S. Bumalda*, Sieb. and Zucc. takes up the roll; to be continued in Western North America by *S. Bolanderi*,

A. Gray, of California, and in Eastern by the American Bladder-nut, *S. trifolia*, Linn. There are two notable features in this distribution, one that the limits of no two species overlap, and the other, and the far more remarkable, that the *S. Emodi*, which is confined to a comparatively very narrow range in the Himalaya and Affghanistan, is so closely allied to the Eastern American *S. trifolia*, that Mr. Hiern, in the "Flora of British India," says of the former, "probably a form of *trifolia*, differing only in the less pubescent foliage, and anther-tips less obtuse." It is, in fact, another instance of the well-known affinity of the N.E. American Flora with the Asiatic.

S. colchica is closely allied to *S. pinnata*, which has long-peduncled, drooping racemes, broader sepals, which are not revolute, and connivent styles of the fruit; the seeds also are much larger, being the size of a pea, whilst those of *S. colchica* are described as no bigger than a peppercorn. Both species have long been in cultivation at Kew, where they flower in May. The specimen of *S. colchica* here figured was sent to Kew for naming from the garden of W. Brockbank, Esq., of Brockhurst, Didsbury. It has of late years been largely grown for forcing, pot-plants of it being very ornamental.

Descr.—A shrub, six to ten feet high; branches opposite, slender, green, terete. *Leaves* opposite, 3–5-foliolate; leaflets $2\frac{1}{2}$–$3\frac{1}{2}$ in. long, ovate-oblong, acuminate, serrulate, bright green, glabrous, except a faint pubescence beneath towards the base, lateral sessile, terminal petiolulate; petiole 2–3 in. long, slender; stipules nearly an inch long, filiform, deciduous; stipels subulate. *Racemes* oblong, more or less compound; bracts filiform. *Sepals* very pale green, revolute, linear, obtuse. *Petals* as long, erect, narrowly spathulate, white, tips recurved. *Filaments* glabrous; anthers apiculate. *Capsule* with spreading styles. —*J. D. H.*

Fig. 1, Portion of leaf; 2, petal; 3, stamens and ovary; 4, ovary and disk; 5, transverse section of ovary:—*All enlarged.*

M.S. del, J.N. Fitch lith.

Tab. 7384.

SESBANIA EXASPERATA.

Native of tropical America.

Nat. Ord. Leguminosæ.—Tribe Galegeæ.

Genus Sesbania, *Pers.*; (*Benth. & Hook. f. Gen. Plant.* vol. i. p. 502.)

Sesbania (Eusesbania) *exasperata*; fruticosa, ramis ramulisque acuta angulatis glabris v. aculeolis minimis exasperatis, foliorum rache 6–8-pollicari, foliolis 30-50-jugis oblongis lineari-oblongisve obtusis mucronatis ciliolatis glaberrimisve, racemis longe pedunculatis 3–5-floribus, pedicellis $\frac{1}{4}$–$\frac{3}{4}$ poll. longis, bracteis subulatis caducis, floribus amplis aureis, calycis tubo corolla multoties breviore turbinato dentibus triangulari-ovatis, vexillo orbiculari apice bilobo dorso creberrime punctato ungue intus 2-callosa, alis oblongis vexillo paullo brevioribus, carinæ petalis dolabriformibus alis æquilongis sed multo latioribus, legumine 8–10-pollicari anguste lineari recto bi-convexo longe rostrato polyspermo, seminibus $\frac{1}{6}$ poll. longis oblongis, testa brunnea.

S. exasperata, *Humb. Bonpl. & Kunth Nov. Gen. & Sp. Amer.* vol. vi. p. 534. *Benth. in Mart. Fl. Bras.* vol. xv. pars. i. p. 42. *Griseb. Fl. Brit. W. Ind.* p. 184.

S. macrocarpa, *Miq. Meissn. et auct. plur. quoad. stirp. Austro-Americanam* (*non Muhlb.*).

Lotus palustris, *Vell. Fl. Flum.* vol. vii. p. 137, text 315.

A very widely distributed tropical American plant, from Jamaica and other West Indian Islands, to South Brazil and Paraguay, and from the coast to the Upper Amazon river. Considering how very handsome its flowers are, it is singular that it should not have been earlier introduced into cultivation. Its habit is, no doubt, forbidding, for, like the other shrubby *Sesbanieæ*, it is of an unattractive habit, and is poor in foliage. It is described in all works as having an unspotted standard; this may be from the spots disappearing in dried specimens, or in poor varieties; but, as grown at Kew, the spots are a very attractive character. The leaves are said to be sensitive.

The plant figured was raised from seeds sent to the Royal Gardens by Señor A. Sampaio, of San Paulo, in South Brazil, which flowered in a greenhouse in April of this year.

Descr.—A glabrous shrub, eight to ten feet high (or

more ?) with slender, acutely angled, sparingly leafy, unarmed or sparingly muricate branches and branchlets. *Leaves* six to ten inches long, scattered ; petiole and rachis slender ; leaflets 30 to 50 pairs, opposite and alternate ; one half to one and a half inches long, from oblong to linear, tips rounded and apiculate, bright green above, pale beneath. *Racemes* shorter than the leaves, few-fld. ; bracts small, caducous; pedicels one half to three-fourths of an inch long ; bracteoles minute, caducous. *Flowers* an inch broad ; standard and wings golden-yellow, speckled with red on the back of the standard, and with a red streak on the wings ; keel sulphur-yellow. *Calyx* green ; tube small, turbinate, teeth triangular. *Standard* recurved, orbicular, deeply notched, bi-convex, with two connate oblong calli at the very base. *Wings* spathulate-oblong, obtuse, much narrower than the keel, but as long. *Keel-petals* hatchet-shaped, with a slender claw. *Filaments* and ovary quite glabrous. *Pod* ten inches long, by one-fourth of an inch broad, linear, stipitate, strict, ending in a straight acute, dagger-like beak, margins thickened, valves convex, slightly constricted at the narrow septum between the very numerous seeds. *Seeds* oblong, rounded at both ends.—*J. D. H.*

Fig. 1, Bud; 2, Calyx and ovary ; 3, base of standard ; 4, wing-petal ; 5, keel-petal; 6, stamens ; 7, pod ; 8, portion of ditto with one valve removed ; 9, seed :—All but figs. 7 and 8 *enlarged.*

M S del. J.N. Fitch lith.

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Tab. 7385.

ORNITHOCHILUS FUSCUS.

Native of the East Indies and China.

Nat. Ord. Orchideæ—Tribe Vandeæ.

Genus Ornithochilus, *Wallich.*; (*Benth. & Hook. f. Gen. Pl.* vol. iii. p. 581.)

Ornithochilus *fuscus*; herba epiphytica acaulis, radicibus crassis, foliis paucis elliptico-oblongis acutis planiusculis coriaceis, pedunculo valido, racemo simplici v. parce ramoso elongato pendulo multifloro, bracteis parvis acutis, floribus parvis longe pedicellatis, sepalis oblique oblongis obtusis aureis rubro-striatis demum reflexis, petalis paullo minoribus concoloribus, labello sepalis majore breviter unguiculato, hypochilo latiusculo patente lobis lateralibus angustis rotundatis, disco carinato et lamina fimbriata transversa orem calcaris claudente instructo, epichilo inflexo erecto rubro marginibus inferne incurvis superne in laminam reniformem recurvam fimbriatam dilatato, calcare ovario remoto sepalis æquilongo incurvo obtuso, columna brevi, rostello demum forcipato.

O. fuscus, *Wall. in Lindl. Gen. & Sp. Orchid.* p. 242. *Hook.f. Fl. Brit. Ind.* vol. vi. p. 76.

O. Eublepharum, *Hance in Journ. Bot.* vol. xxii. (1884). p. 364.

Ærides difforme, *Wall. ex Lindl. l. c. Lindl. Sert. Orchid. frontisp.* fig. 7, *et in Journ. Linn. Soc.* vol. iii. p. 41. *Walp. Ann.* vol. vi. p. 889. *Reichb. f. in Gard. Chron.* (1865), p. 698.

A. Hystrix, *Lindl. in Journ. Linn. Soc. l. c.* p. 42 (*non Gen. & Sp. Orchid.*)

A singular Orchid, the flowers of which, owing especially to the complicated nature of the lip, are (as with many other Orchids), most difficult to describe in intelligible, and, at the same time, accurate language. It was first made known by Wallich about sixty years ago as a native of Nepal, and it has since been found in the Eastern Himalaya and Khasia hills, at elevations of 4-5000 ft., in Burma, and more recently in China. According to a series of drawings made in India, and preserved at Kew, there is much variation in the colour of the flower, from dull green to orange-yellow, in the breadth of the sepals, and in the lip, the fimbriated midlobe (epichil) of which is more or less 3-lobulate, with the side lobes fimbriate, and the midlobe either entire or fimbriate. The description in "Genera Plantarum" and in the clavis of genera of Orchids in the "Flora of British India" (vol. v. p. 672), both taken from

dried specimens, are very faulty, for there is no true mentum; what was taken for a mentum is the inflexed narrow claw of the lip; nor is the lip usually saccate at the base, though so represented in some of the drawings, but at the distal end of the hypochil, under the insertion of the epichil.

O. fuscus flowered in the Royal Gardens in May last. The specimen was received in 1892 from C. Ford, Esq., F.L.S., Superintendent of the Hong Kong Botanical Gardens.

Descr.—*Stem* 0; roots very stout, vermiform. *Leaves* few, 4–6 inches long, sessile, spreading, elliptic-oblong, acute, subrecurved, flat, coriaceous, bright pale green. *Racemes* simple or branched at the base, about a foot long, arising close to the bases of the leaves, pendulous, very many-flowered; peduncle as thick as a duck's quill, curved, terete, with a few very short broad brown sheaths; floral bracts very small, subulate, dark brown; pedicels spreading, with the slender ovary $\frac{1}{2}$–1 in. long; perianth about $\frac{2}{3}$ of an inch long from the tip of the reflexed sepals to that of the lip. *Sepals* $\frac{1}{4}$ in. long, spreading or reflexed, oblong-ovate, obtuse, golden-yellow streaked with red. *Petals* like the sepals, but smaller. *Lip* nearly as large as the rest of the flower, consisting of three parts, a concave, expanded, horizontal hypochil, suddenly contracted at the base into a narrow geniculate claw, an erect epichil, and a rather long spine beneath the latter; the hypochil has rounded side lobes, a flat ridge crenate at the dilated base on the disk; and at the base of the epichil a flat, fimbriate flap overhangs the mouth of the horn-like obtuse spur; epichil at right angles to the hypochil, its margins infolded, so as to be tubular, then expanding into a broad, recurved, dark red, simple or 3-lobed fimbriate limb, the tube dorsally bears an acute spur. *Column* very short, with a broad fimbriate semi-lunar disk below the clinandrium; top contracted; anther oblong, obtusely beaked in front; pollinia pyriform, separately sessile on a flat strap, the truncate top of which is seated on a quadrate gland.—*J. D. H.*

Fig. 1, Lip and column; 2, lip; 3, column; 4, anther; 5 and 6, *pollinia*:—*All greatly enlarged.*

M.S.del. J.N.Fitch Lith

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Tab. 7386.

ALOE Kirkii.

Native of Zanzibar.

Nat. Ord. Liliaceæ.—Tribe Aloineæ.

Genus Aloe, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 776.)

Aloe, *Kirkii*; caudice brevi valido, foliis 30–40 dense rosulatis lanceolatis subpedalibus patulis viridibus brevibus immaculatis, aculeis marginalibus magnis patulis deltoideis, pedunculo stricto erecto trifurcato, racemis densis oblongo-cylindricis, pedicellis brevibus, superioribus ascendentibus, inferioribus cernuis, bracteis ovatis parvis, perianthio cylindrico rubro-luteo apice viridulo, lobis lingulatis tubo brevioribus, staminibus brevissime exsertis.

This is another new *Aloe*, sent from Zanzibar by Sir John Kirk to the Royal Gardens, Kew. It was received from him in 1881, and flowered for the first time in the Succulent House in January, 1894. It belongs to the group of true Aloes with a very short caudex, and dense rosette of unspotted leaves, of which *A. brevifolia*, *Serra*, *glauca*, and *heteracantha* are the best known garden representatives. Its nearest ally is *A. Hildebrandtii*, Baker in *Bot. Mag.* Tab. 6981, which also is a native of South-East tropical Africa.

Descr.—Caudex short, stout, erect. *Leaves* thirty to forty in a dense rosette, spreading, lanceolate, nearly a foot long, two inches broad above the dilated base, tapering gradually to the point, a quarter of an inch thick in the middle, bright green, without any spots or dots, very smooth on both surfaces; marginal teeth large, deltoid, spreading, scarcely tipped with brown in the cultivated plant. *Inflorescence* two feet long, with three branches; peduncle stiffly erect, branched at the middle; racemes dense, oblong-cylindrical, the end one nearly a foot long; pedicels short, the upper ascending, the lower cernuous;

bracts very small, ovate. *Perianth* cylindrical, above an inch long, reddish-yellow, tipped with brown; lobes lingulate, rather shorter than the tube. *Stamens* finally very shortly exserted—*J. G. Baker.*

Fig. 1, A flower; 2, an anther, front view; 3, an anther, back view; 4, ovary and style, *all enlarged*; 5, whole plant *much reduced.*

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Tab. 7387.

EULOPHIELLA Elizabethæ.

Native of Madagascar.

Nat. Ord. Orchideæ.—Tribe Vandeæ.

Genus Eulophiella ; (*Rolfe in Lindenia*, vol. iii. p. 29.)

Eulophiella *Elizabethæ*; pseudobulbis e rhizomate repente crassis cylindraceis viridibus annulatim cicatricosis, vestigiis foliorum scopiformibus brunneis instructis, foliis bipedalibus elongato-lanceolatis acuminatis plicatis deciduis, scapo crasso decurvo basi vaginis brevibus obtusis striatis operto dein elongato nudo rufo-brunneo, racemo pendulo multifloro, floribus suberectis albis extus roseo irroratis, bracteis ovatis subacutis rufo-brunneis, pedicellis una cum ovariis 1–1½ pollicaribus roseis decurvis dein ascendentibus, sepalis rotundatis dorso roseo irroratis, petalis obovato-rotundatis, labello sessili parvo 3-lobo albo disco aureo, lobis oblongis margine interiore crenatis, disco inter lobos callo hippocrepiforme carinisque 2 antice dentatis instructo, lobo terminali rotundato crenulato retuso v. emarginatco, disco setoso, columna mediocri apice contracta basi in pedem producta, anthera parva tumida postice deorsum producta, polliniis globosis in glandula transversa sessillibus.

E. Elisabethæ, *Linden & Rolfe*, *l. c.* vol. vii. p. 77, t. 325, and *in Orchid Review*, vol. i. (1893), p. 207. *Linden Illustr. Hortic.* vol. xl. (1893), p. 39, t. 173, f. 2, & *Journ. Orchid.* (1892), p. 95, fig. 11. *Le Jardin* (1893), p. 111, fig. 43. *Journ. Hortic.* Ser. 3, vol. xxv. p. 255. *Neub. Gard. Mag.* (1894), p. 2, t. 1.

Eulophiella is a remarkable genus, manifestly belonging to the Sub-Tribe *Cyrtopodieæ*, and to be placed near *Cyrtopodium*, from which it differs in habit, and in the absence of a mentum, the perianth being hemispherical and equally rounded at the base. Its native country was for some time doubtful, and supposed to be the Congo region. Latterly it has been sent to Messrs. Sander & Co. of St. Albans, from Madagascar, by M. L. Hamelin, a French gentleman resident in that island, who is believed to be the discoverer of the plant. It was first flowered by Linden. The specific name *Elizabethæ* is given in compliment to H.M. the Queen of Roumelia ("Carmen Sylva.")

The Royal Gardens are indebted to Messrs. Sander for a plant received in 1893, which had not, however, flowered

when, in April, 1894, the raceme here represented was kindly sent by Sir Trevor Lawrence, Bt. Mr. Watson informs me that it requires a very hot and damp stove.

Descr.—*Rhizome* creeping and rooting, sending up tufts of leaves, and compressed green, annulate pseudobulbs four to six inches high, and one inch broad; the transverse scars at the nodes of which are brown, and bear a thin bunch of brown, flexuous fibres, an inch long. *Leaves* nearly two feet long, by one and a half broad, narrowly lanceolate, gradually finely acuminate, plicate, with five or more stout ribs beneath. *Scape* from the base of the leafing pseudobulbs very stout, as thick at the base as a goose-quill, and there decurved, furnished with short, ovate, obtuse, brown, striated scale-like sheaths, pale red-brown, as are the rachis of the raceme, bracts, pedicels, and ovaries. *Racemes* many-fld.; bracts two-thirds of an inch long, spreading, ovate, acute; peduncle stout, with the ovary curved, and ascending from the drooping rachis. *Flowers* suberect, one and a half inch in diameter, hemispheric. *Sepals* orbicular, white within, suffused with rose across the middle dorsally. *Petals* smaller than the sepals, broadly obovate, white. *Lip* much smaller than the sepals, white, with a golden disk, 3-lobed; lateral lobes oblong, obtuse, crenulate in front; midlobe orbicular, emarginate or retuse, crenulate; disk with a horse-shoe callus towards the base, and 2 ridges between the lateral lobes, setose on the mid-lobe. *Column* concave in front, tip contracted. *Anther* small, gibbous, produced posteriorly into a short, deflexed, obtuse beak; pollinia 2, subglobose, sessile on a broad transverse gland.—*J.D.H.*

Fig. 1, Lip and column; 2, lip with one lateral lobe removed; 3, column; 4, anther; 5, pollinia:—*All enlarged.*

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Tab. 7388.

DAPHNE caucasica.

Native of the Caucasus.

Nat. Ord. Thymelæaceæ.—Euthymelæeæ.

Genus Daphne, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 190.)

Daphne (Eudaphne) *caucasica*; frutex humilis, erectus, ramulis glabris, foliis deciduis sparsis sessilibus lanceolatis oblanceolatisve obtusis apiculatis glaucis glabris basi angustatis pallide viridibus, fasciculis florum terminalibus ebracteatis, floribus albis brevissime pedicellatis, calycis subsericeo-canescentis tubo lobis duplo longiore cylindraceo, lobis ovatis obtusis marginibus demum recurvis, ovario obovoideo parce piloso.

D. caucasica, *Pall. Fl. Ross.* vol. i. p. 53. *Georgi Beschreib. d. Russ. Reich.* vol. iii. p. 937. *Ledeb. Fl. Ross.* vol. iii. p. 549; *Fl. Alt.* vol. ii. p. 71. ***Meissn. in DC. Prodr.* vol. xiv. pt. i. p. 531.**

D. altaica, *Pall. l. c.* t. 35. *Ledeb. l. c.* 548. *Bot. Mag.* t. 1875 (*var.*)

D. caucasica, *var.* β cognata, *C. Koch in Linnæa*, vol. xxii (1827), p. 614.

D. Cneorum, *Guldenst. It.* vol. i. p. 191 (*ex Ledeb. l. c. non Linn.*).

D. salicifolia, *Lam. Encycl.* vol. iii. p. 438. *M. Bieb. Fl. Taur. Cauc.* vol. i. p. 299. *Eichw. Fl. Taur. Cauc.* p. 22, 26. *Kaleniez. in Bull. Soc. Natural Mosc.* (1849), p. 309.

D. euphorbioides, *Pusch. ex Steud. Nom. Ed.* 2, vol. ii. p. 483.

D. oleoides, *Tchern. in Herb. DC. ex Meissn. l. c.* 532 (*non Linn.*).

The species of *Daphne* are notoriously difficult of discrimination by available characters of habit, flowers or foliage, of which fact the S. European and Oriental *D. oleoides*, Schreb., which has fifteen recorded names, is a conspicuous instance. In the case of the plant here figured, I am in doubt whether to call it *D. caucasica*, or *D. altaica*, Pall. According to Meissner's characters of these species they differ only in the former having leaves lanceolate, 2–5 flowers in a head and a glabrous ovary, and the latter leaves lanccolate or oblong, 2–20 flowers in a head, and an ovary puberulous at the top. Thus the character of the leaves and number of flowers are of no avail, and in the plant here figured the ovary agrees with neither, having merely a few hairs on its surface.

Referring to Herbarium specimens, I find no appreciable difference between the Caucasian and Altaic ones, and it is

hence no violent assumption to make, that as *D. oleoides* extends from Spain to the Himalaya, so may *caucasica* extend from the Caucasus to the Altai. If this be so, the choice of names becomes a question, for both were published in the same book by Pallas. Of the two *D. altaica* is the better known, the broad-leaved form of it having been figured in this magazine (t. 1875), from a plant that flowered in the Cambridge Botanical Garden in 1817. The latter are described as not being fragrant, whereas those of *D. caucasica* are decidedly so. On the other hand, Pallas's plate of *D. altaica* is quite erroneous, and contrary to his description, in figuring the clusters of flowers as supported by a long peduncle.

Plants of *D. caucasica* were procured by the Royal Gardens in 1893, under the name of *salicifolia*, from Mr. T. Smith of Newry, whose nursery is famous for the number of rare shrubs it contains, many of them, though hardy in Ireland, unfortunately not so at Kew. In the case of *D. caucasica*, however, it stood the winter of 1893–4, and flowered in May of the latter year, but has not fruited.

Descr.—A dwarf shrub, quite glabrous, except the perianth. *Leaves* one to one and a half inches long, deciduous, linear-lanceolate or oblanceolate, subacute or obtuse and apiculate, pale green above, subglaucous beneath. *Flowers* subsessile, in terminal clusters of two to twenty, white, fragrant, ebracteate. *Perianth* tube half an inch long, cylindric, silkily pubescent; lobes ovate or nearly orbicular, about half as long as the tube, margins at first involute, then revolute. *Stamens* included, except the tips of the four upper anthers. *Ovary* obovoid, sparsely pubescent; style very short; stigma broad, hemispheric. —*J.D.H.*

Fig. 1, Flower; 2, the same, with the perianth laid open; 3, ovary; 4, vertical section of the same:—*All enlarged.*

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Tab. 7389.

ERYCINA ECHINATA, *Lindl.*

Native of Mexico.

Nat. Ord. ORCHIDEÆ.—Tribe VANDEÆ.

Genus ERYCINA, *Lindl.*; (*Benth. & Hook. f. Gen. Plant.* vol. iii. p. 565.)

ERYCINA *echinata*; herba epiphytica, caule brevi apice pseudobulbum solitarium monophyllum gerente, foliis e basi lata sessilibus distichis imbricatis ovatis acutis apiculatis sursum sensim majoribus, pedunculo axillari gracili decurvo, racemo simplici v. paniculatim ramoso pauciflоro, bracteis patentibus lanceolatis vaginato, pedicellis brevibus muriculatis, sepalis parvis subherbaceis postico ovato acuminato galeato recurvo basi tumido, lateralibus lanceolatis basi connatis divaricatis, petalis ovatis acutis reflexis, labello basi columnæ adnato sepalis petalisque multoties majore plano aureo profunde 3-lobo sinubus rotundatis, lobis lateralibus basi contractis flabelliformibus, intermedio unguiculato transverse oblongo, disco ad basin lobi medii callis 2 et appendicibus 2 erectis elongatis linguæformibus instructo, columna brevissima apoda exalata basi utrinque tumida, rostello elongato sigmoideo erecto, anthera incumbente elongata longe rostrata, polliniis 2 ovoideis apice stipitis gracilis geniculatim inflexi sessilibus, glandula magna ovata, capsula echinata.

E. echinata, *Lindl. Fol. Orchid.* 1853. *Reichb. f. in Walp. Ann.* vol. vi. p. 739. *Hemsl. Biol. Cent. Amer.* vol. iii. p. 289.

Oncidium echinatum, *Humb. Bonpl. & Kunth, Nov. Gen. et. Sp. Amer.* vol. i. p. 345, t. 79.

A very singular little Orchid, belonging to the South American subtribe *Oncidieæ*, and with the aspect of a small *Oncidium*, but differing remarkably from that genus in the structure of the lip and column, the former being almost equally 3-lobed, and the latter being very short, thick, and without wings. The vertical position of the clinandrium, too, with the very long anther at its back, and the long rostellum, are quite unlike any *Oncidium*. Bentham rightly compares the appendages of the lip and the rostellum to those of the Brazilian genus *Zygostates*, Lindl., in which the column, though longer, is as in *Erycina* footless, the rostellum very long, and the clinandrium lies at the back of the column.

Erycina echinata was discovered by Humboldt at the beginning of the century, at or near Acapulco, on the west coast of Mexico, and it has since been collected by Galeotti at the Laguna de Tututepec in the province of

Oaxaca, at an elevation of 4000 ft. The plant figured was received at the Royal Gardens from Messrs. F. Sander & Co. of St. Albans in 1892, and flowered in a warm house in April, 1894.

Descr.—A small epiphyte. *Stems* tufted, two to six inches high, clothed throughout with distichous, imbricating, persistent, acute bracts below, and leaves above, and terminating in a small oblong, 2-leaved pseudobulb, which is sunk between the uppermost pair of leaves. *Leaves* two to four inches long, ovate-oblong, acuminate, bright green, with a few brown stripes, jointed on the compressed short sheaths. *Racemes* axillary from the base of the pseudobulb, slender, decurved, loosely many-flowered; peduncle long, with many lanceolate, spreading, amplexicaul, rigid sheaths one-third of an inch long; bracts like the sheaths, but smaller; pedicels as long as the bracts, slender. *Flowers* two-thirds of an inch in diam. *Sepals* very small, dorsal galeate acuminate; lateral connate at the base, linear-oblong, herbaceous, diverging, concealed under the lip. *Petals* ovate, acuminate, green, reflexed. *Lip* very large, flat, deeply 3-lobed, lobes subequal.—*J. D. H.*

Fig. 1, Front, and 2, back view of flower; 3, column and base of lip; 4 anther cap; 5 and 6, pollinia :—*All enlarged.*

M. S del, J N. Fitch lith.

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Plate 7390.

STROPHANTHUS PETERSIANUS

var. GRANDIFLORUS.

Native of Delagoa Bay.

Nat. Ord. Apocynaceæ.—Tribe Echitideæ.

Genus Strophanthus, *DC.*; (*Benth. & Hook. f. Gen. Plant.* vol. ii. p. 714.)

Strophanthus *Petersianus*; frutex scandens, glaberrimus, ramis gracilibus brunneis albo-maculatis, foliis petiolatis ovatis obtuse acuminatis undulatis, cymis paucifloris, floribus subsessilibus, calycis lobis ovatis recurvis, glandulis basi 5 inæqualibus, corollæ flavidæ v. purpurascentis tubo calyce duplo longiore infundibulari-campanulato, lobis lanceolatis in caudas longissimas tortas pendulas productis, appendicibus oris tubo fere æquilongis subulatis flexuosis, filamentis connectivis intus villosis, antherarum aristis loculis æquilongis v. brevioribus.

S. Petersianus, *Klotzsch in Peters' Reise Mossamb. Bot.* p. 276.

S. sarmentosus, *A.D.C.* var. verrucosus, *Pax in Engl. Bot. Jahrb.* vol. xv. (1893), p. 374.

Var. grandiflorus, *N.E. Brown in Kew Bullet.* (1892), p. 126; floribus majoribus.

Except in the much larger size of the flowers there seems to be nothing to distinguish this handsome plant from that found by Dr. Peters, whence it follows that *S. Petersianus* has a very wide distribution (of 20°) in tropical Africa, varying much in both the size and colour of the flowers, the breadth of the calyx-lobes and the length of the tails of the corolla-lobes. The Southern limit, as far as is ascertained is the North bank of the Limpopo river, where it was found by Mr. St.V. W. Erskine, who made good drawings of the flowers, representing the corolla as rose-purple externally. Its Northern limits are Mombasa, where it was found by Hildebrandt, and Zanzibar (Kirk). The type of the species, so far as first publication is concerned, is a small flowered state, which was discovered by Dr. Peters near Tette, on the Zambesi river, about 300 miles from its mouth. Herbarium specimens of the large flowered variety here figured were sent to Kew in 1876, by the late J. J. Monteiro, Esq. (a first-rate Naturalist, and valued correspondent), whose

work is the only really good English one of its kind known to me that relates to the Natural history of any part of tropical Africa. The species appears to extend to the West Coast, for a *var. amboense* (*Schinz in Verhandl. Bot. Ver. Prov. Brandenb.* xxx. (1889), p. 259, is described as a native of Amboland (Ovampoland), in the German territory of Damara Land. Finally, Pax, as referred to above, regards it as a variety of the West African *S. sarmentosus*, AD.C. It is a species of this genus, believed to be *S. hispidus*, DC., the root of which is said to yield the arrow-poison of some African tribes, and the seeds of which are reputed to be a valuable medicine in the treatment of certain cases of heart disease.

The plant from which the specimen figured is taken was raised from seeds sent to the Royal Gardens in 1884 by Mrs. Monteiro, herself a valued correspondent of the Royal Gardens. It flowered in a stove, where it was trained to a rafter, for the first time in May, 1894.

Descr.—A slender climber, quite glabrous; branches brown, speckled with white, terete, smooth. *Leaves* three to five inches long, ovate, obtusely acuminate, undulate, bright green above, pale beneath, base rounded or narrowed; petiole about half an inch long. *Flowers* solitary, a few in a subterminal cyme, very shortly pedicelled. *Calyx-lobes* two-thirds of an inch long, ovate, acute, recurved green, suffused with red, glands at the base within irregular in form and disposition. *Corolla-tube* twice as long as the calyx, between infundibular and campanulate, upwards of an inch long, and as broad across the mouth, dull yellow with broken red streaks; lobes reflexed, lanceolate, narrowed into slender loosely twisted pendulous tails eight inches long, inner surface yellow, outer dull red; appendages of the mouth two-thirds of an inch long, subulate, erect, flexuous, yellow. *Filaments* woolly in the inner face; awn of anther as long as the cells; connective with a boss on the inner face. *Ovary* ellipsoid; style long, slender, tip very unequally 2-fid.—*J. D. H.*

Fig. 1, Base of corolla tube and stamens; 2, anthers viewed from the inner face; 3, ovary and style:—*All enlarged.*

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Tab. 7391.

GMELINA Hystrix.

Native of the Philippine Islands.

Nat. Ord. Verbenaceæ.—Tribe Viticeæ.

Genus Gmelina, *Linn.*; (*Benth. & Hook. f. Gen. Plant.* vol. ii. p. 1153.)

Gmelina *Hystrix*; frutex scandens, spinosus, ramulis junioribus hispido-pubescentibus, foliis glabris subtus sparse glandulosis, aliis elliptico-oblongis obtusis v. subacutis aliis minoribus latioribus obtuse lobatis, spicis strobiliformibus terminalibus breviusculis, bracteis amplis tumidis ovato-rotundatis acuminatis 5-nervis pulcherrime rubro-venulosis, calyce brevi obtuse 5-dentato hirto pauci-glanduloso, corollæ aureæ tubo e basi angusto campanulato infra orem inflato curvo, limbi labio superiore 3-lobo, lobis brevibus late ovato-rotundatis recurvis inferiore triplo longiore ovato obtuso, filamentis anticis glandulosis, posticis multo minoribus glabris, drupa obovoidea.

G. Hystrix, *Schult. ex Kurz in Journ. As. Soc. Beng.* vol. xxxix. (1870) pt. ii. p. 81. *Villar, in Blanco Fl. filip.* vol. iii. *Nov. App.* p. 159.

A very little known plant, of which the first published description is by the late S. Kurz, a first-rate Indian Botanist, and author of "The Forest Flora of Burma," who was for some time an employé in the Herbarium of the Botanic Garden of Buitenzorg (Batavia), and latterly Curator of that of the Calcutta Gardens. Kurz's description of it is apparently made from specimens grown in the gardens of Bankok, Siam, and preserved in the Buitenzorg Herbarium; and as to the name and authority of Schult, he says, "I found it attached to the plant in the Library of the Botanic Gardens, Buitenzorg, but I am unable, at present, to give a reference to the work in which it occurred." The Kew Herbarium contains several specimens of it from Siam, collected by the late Sir R. Schomburgk, and the late Mr. Murton, when Superintendent of the Botanic Gardens of Bankok, who says of it, "apparently wild at Bankok." There are also specimens sent from the Natal Botanic Gardens as a Siam plant. On the other hand, there are undoubtedly indigenous specimens from the Philippine Islands, from Cuming (No. 1913), and from

Vidal, collected in the Province of Laguna (No. 3439); and the latter author gives, in his edition of Blanco's "Flora de Filipinas," several localities for it in the Archipelago. I think, therefore, it may be assumed that this beautiful plant has been introduced into Siam from the Philippines; and from Siam into India and Natal.

Plants of *Gmelina Hystrix* were sent to Kew from the gardens of H.H. the Gaekwar of Baroda, by Mr. Goldring, Superintendent of his Highness's gardens and plantations, who says of it, "that it forms a sturdy shrub, and that the bracts there are higher coloured than those represented in the plate." At Kew the plant is grown in the Water-Lily House, trained against the glass roof, where it has the habit of a *Bougainvillea*, and flowers freely.

Descr.—A scandent stout shrub, more or less spinescent, no doubt according as it is grown in a damp or drier climate; branchlets and shoots hispidly pubescent. *Leaves* petioled, dimorphic, bright green above, pale below, where there occur scattered globose glands; in one form of the leaves these are 4–6 in. long, elliptic-oblong, subacute, in the other they are shorter, broader, and with shallow lobes; petiole appressed hairy, about half an inch long. *Flowers* subsessile, in short, dense, terminal, drooping, cone-like, sessile spikes, formed of very large imbricating, convex, broadly ovate, acuminate bracts, one to one and a half inches long and broad, beautifully veined with red. *Calyx* small, cup-shaped, strigose; lobes four, very short and broad. *Corolla* nearly three inches long, golden-yellow; tube curved, campanulate, and gibbously inflated from a narrow base; limb 2-lipped; upper lip of 3 short, broad, rounded recurved lobes; lower much longer, protruded, ovary obtuse. *Stamens* 4, the two anticous much the largest, with glandular filaments. *Anthers* subreniform. *Style* very slender. *Drupe* nearly an inch long, obovoid—*J. D. H.*

Fig. 1, Bud; 2, Calyx and style; 3, portion of corolla and stamens; 4. back of anther; 5, vertical section of ovary; 6, drupe (from the Herbarium):—All but 6 more or less *enlarged.*

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